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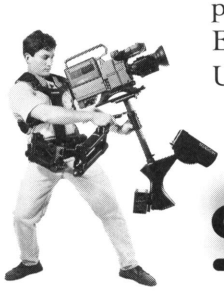

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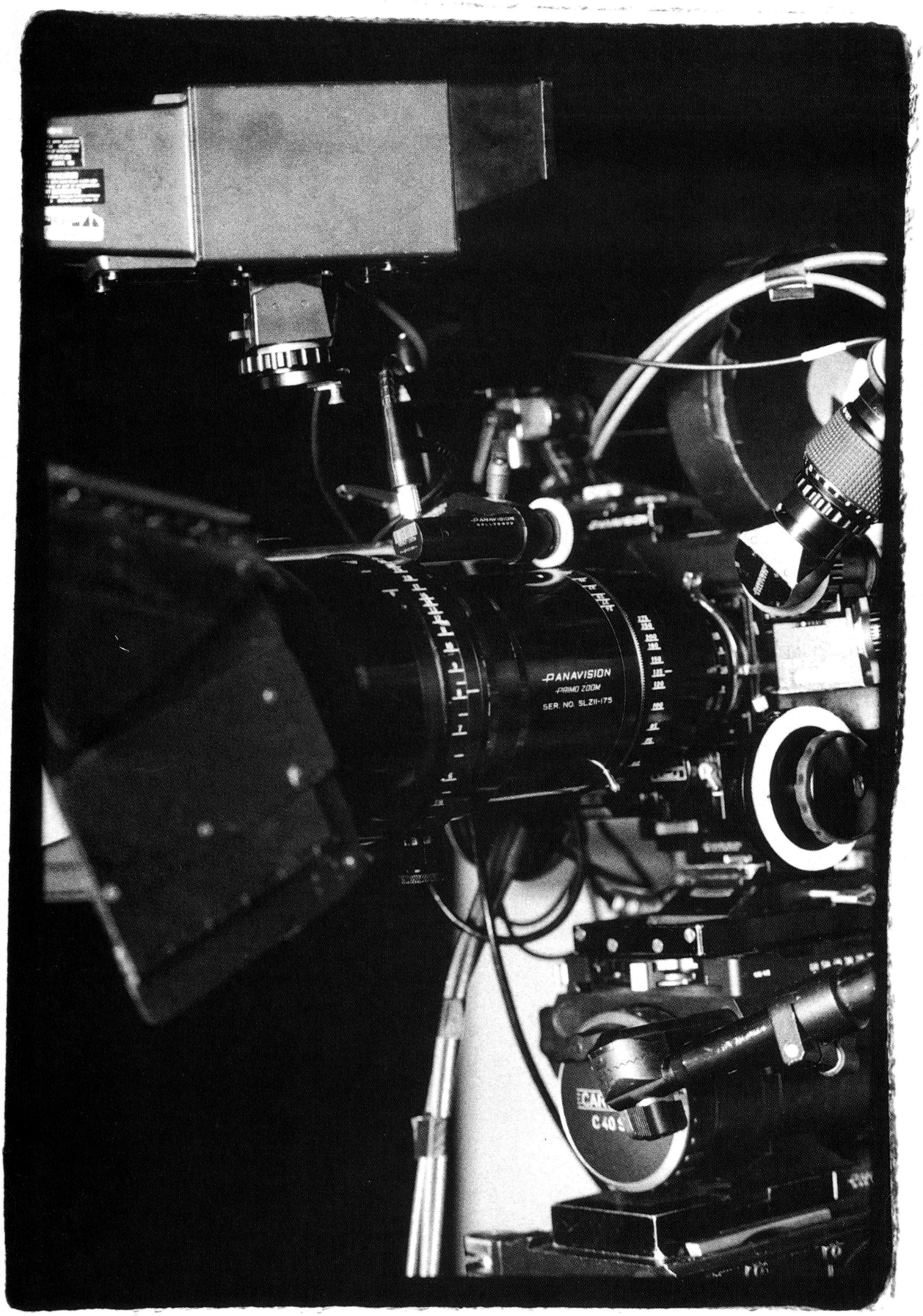

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The International Journal of Film and Electronic Production Techniques

July 1997 Vol. 78 No. 7

American Cinematographer

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On Our Cover: The frosty Mr. Freeze (Arnold Schwarzenegger) makes a flamboyant entrance in *Batman and Robin,* directed by Joel Schumacher and photographed by Stephen Goldblatt, ASC (photo by Christine Loss, courtesy of Warner Bros.).

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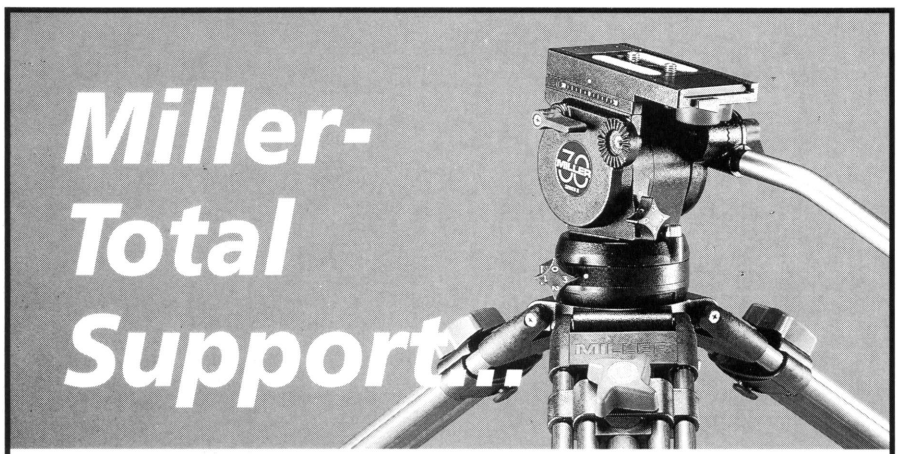

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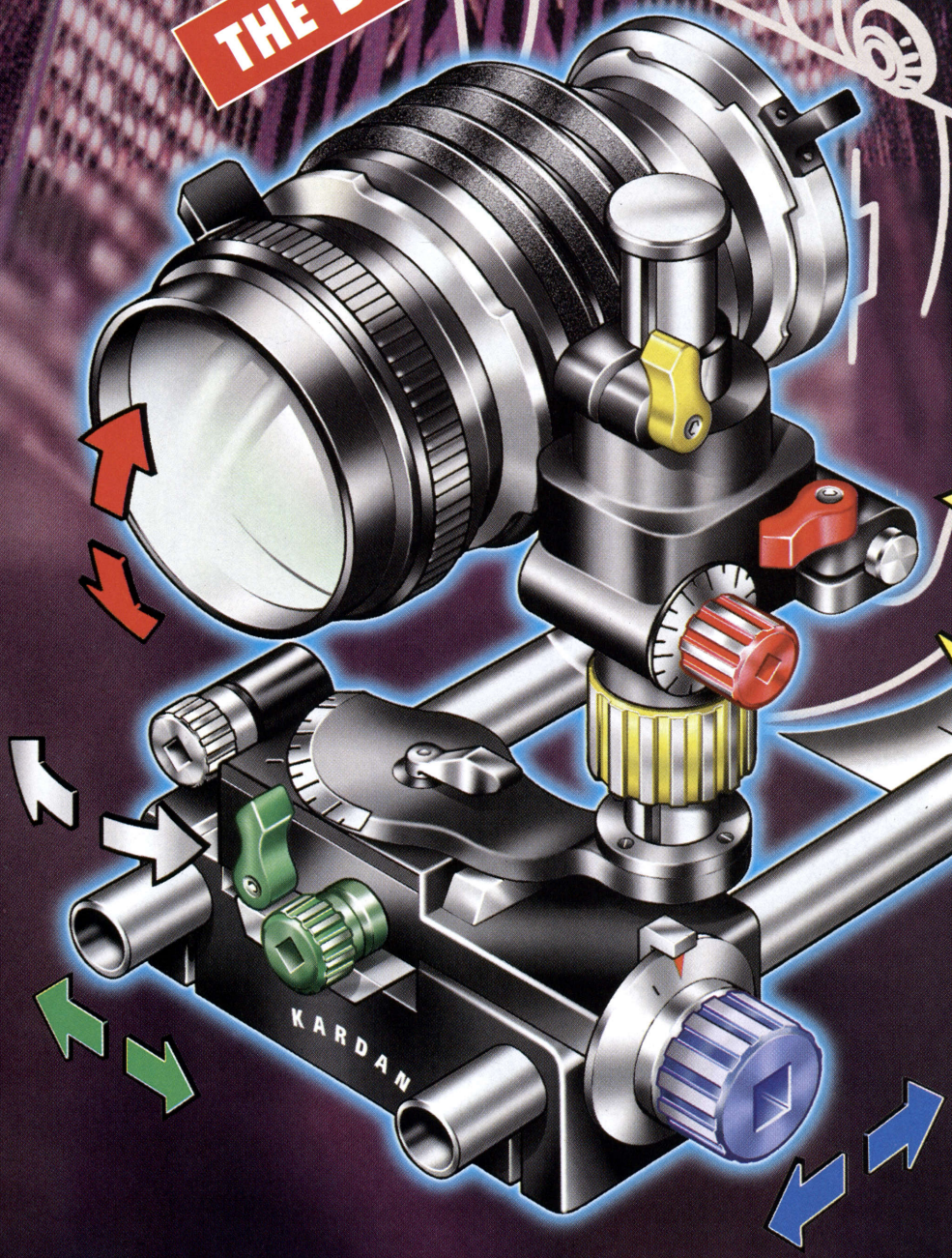

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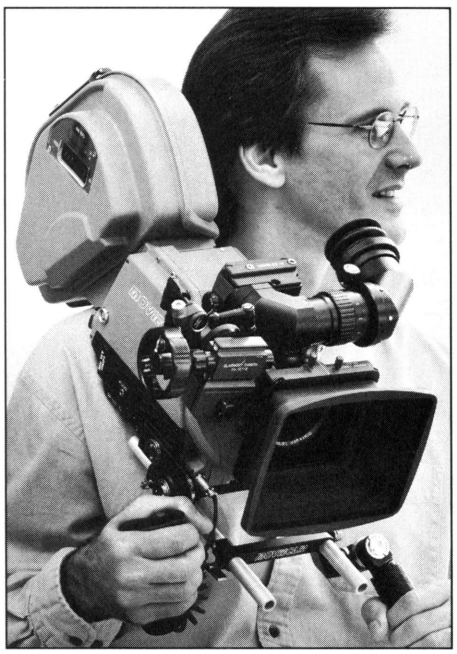
How Clairmont sees the Moviecam SL:

Light weight is just the beginning.
This is an excellent *dual-purpose* B camera.
Silent-running, shares modules with
the Moviecam Compact A camera. And you can
switch it very quickly from studio
mode to hand-held or Steadicam mode, so you
don't need to rent a third camera.



How long does it take to switch an SL from one mode to another? We timed one man making two switches; the results impressed us.

Test results:

At the top of the other page, you can see one of our SLs in full studio mode. At the bottom is an SL in Steadicam mode. We were able to switch from studio to Steadicam in two minutes, four seconds, including film threading.

We asked Moviecam for a 150° shutter setting. Here's what happened:

On the phone with Moviecam designer Fritz Gabriel Bauer, Denny Clairmont mentioned that a 150 degree position on the Compact's adjustable shutter would be useful to people shooting at 25 fps with HMI lights in 60Hz countries. It was said only once — but in our next shipment, there it was, on all the cameras. The SL uses the same *helpful* shutter.

Not long

From studio to hand-held took our man four minutes, ten seconds. Most of the extra time was spent on the left handgrip with its bracket/rods and on the follow-focus.

Not heavy

In hand-held mode, that SL weighed 23 lbs with video tap, hand-held finder, handgrips/rods, Zeiss 35mm T1.3, follow-focus, MB3 mattebox and empty magazine. In Steadicam mode, with video tap, same lens/mattebox and empty magazine, it weighed 17 lb 10 oz.

Same movement

Those are M.O.S. camera weights; but the SL is clearly a sync-sound production camera, in all three modes. It uses the same dual-pin registration movement as the Compact, it has the same adjustable shutter and it can be equipped with the same electronics.

Same accessories

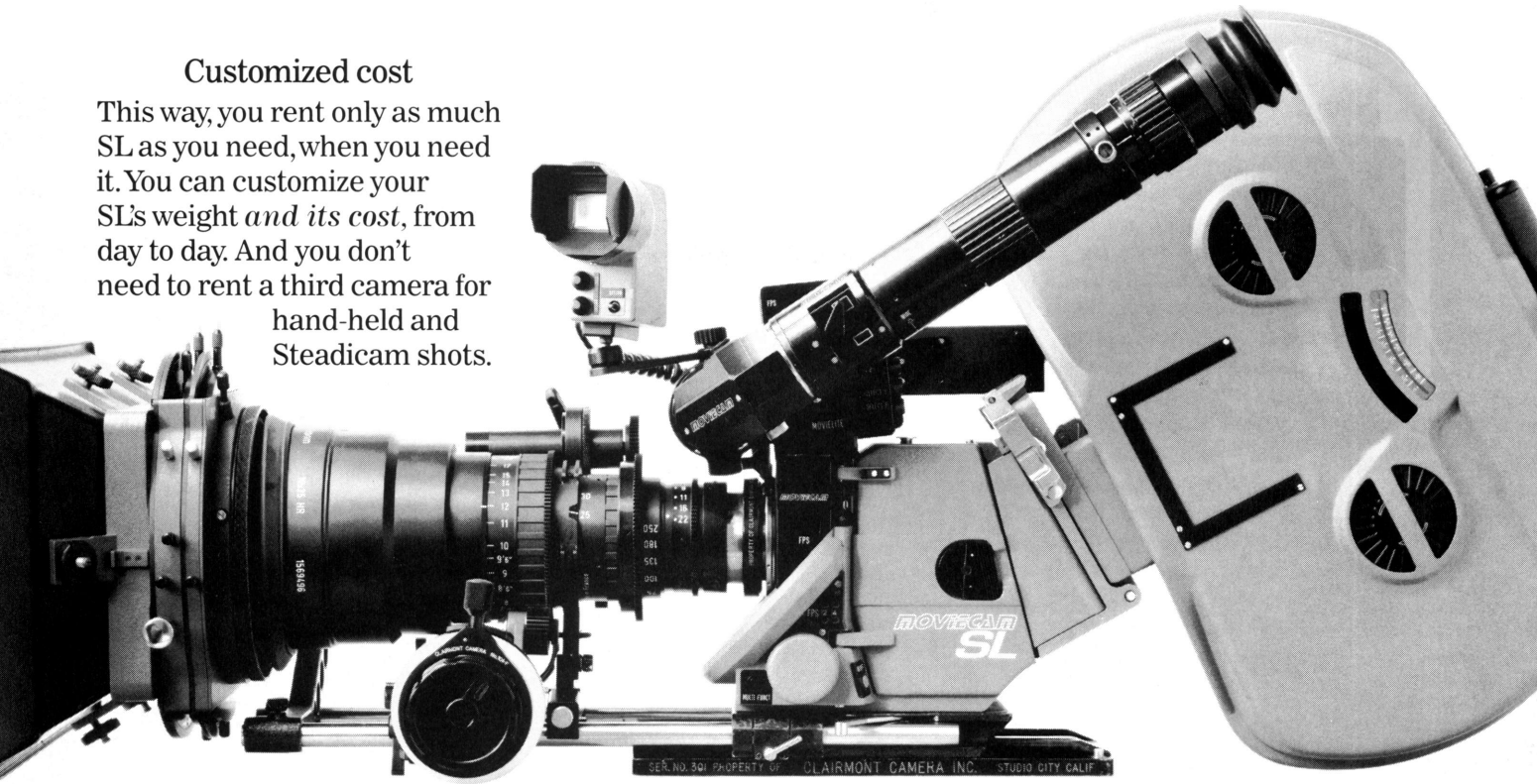
Plug-in accessories provide sync with video monitors and rear projection, speeds from 2 to 40 fps and an iris motor that automatically compensates. With the Compact's viewing module on the SL, you can use the long finder and swing it over. Spherical or anamorphic. Tach and footage counter on both sides. Movieglow.

Rental package

So we see the SL as a dual-purpose B camera — and that's the way we're packaging it. The daily rate is for an SL in its basic hand-held mode. You can mount your 1000 foot Compact magazines. But if you want the Compact's viewing modules and electronics on your SL, you'll rent our studio mode kit.

Customized cost

This way, you rent only as much SL as you need, when you need it. You can customize your SL's weight *and its cost*, from day to day. And you don't need to rent a third camera for hand-held and Steadicam shots.



Extremely quiet

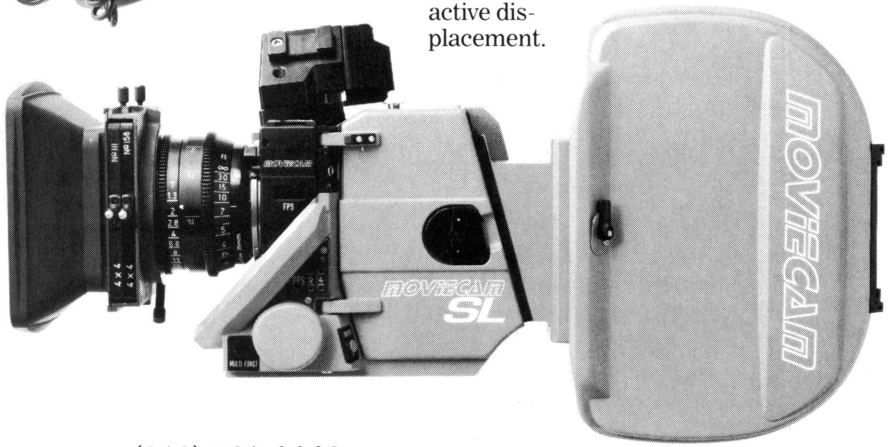
How quiet is the SL? "The Compact was the lightest-weight silent-running camera in the World before the SL came along," says Denny Clairmont. "The Compact is the quietest camera I've ever met and I've met them all. The SL is extremely quiet, but not quite as quiet as the Compact."

In studio mode, above, viewing system and magazine are from Compact. Camera body module weighs 8 lb 6 oz.

Kiss me

Here's the rule of thumb: the SL is quiet enough to shoot anywhere except close in above a love scene where the actors are whispering to each other. For that shot, use your A camera.

Magazines are small because of active displacement.



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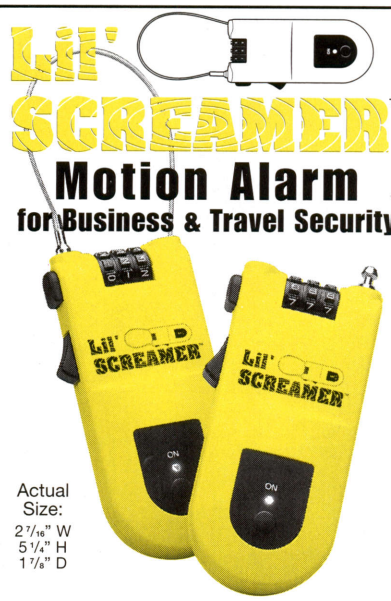

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Letters

Lost Equipment

Stephen Pizzello's article "Chase, Crush and Devour" [*AC* June '97] erroneously stated that a Wescam gyrostabilized camera system was used during filming of *The Lost World*. In actuality, it was Flying Pictures USA's Gyrosphere system, which is shown in the photograph on page 44. The Wescam system was not used at all on that or any shot in the film.

— Marc Buonaguidi
Booking Coordinator,
Flying Pictures USA
Van Nuys, CA

The Sixth Element

The article "Fantastic Voyage," which describes effects work on *The Fifth Element* [see *AC* May '97], erroneously credits Digital Domain for pioneering matting techniques basic to the Reverse Bluescreen technique which I and Roger Dorney developed in 1982 for the film *Firefox*. The same error occurred in the June '95 issue in a story describing traveling matte photography for a spacecraft re-entry scene in *Apollo 13*. In the *Apollo* story, Digital Domain is described as having "used the traditional technique of applying clear lacquer phosphor paint to their models," and shooting a black light pass as part of "that now-hum-drum technique." It then goes on to aver that Digital Domain innovatively used the foreground subject matte in conjunction with the background matte to extract yet a third matte described as "traveling garbage mattes for the green spill on the models; then we could flop and print the Earth or the moon into them, which created very natural moving reflections in the ships."

As it happens, Reverse Bluescreen is more than adequately documented most notably in this very publication; the September '82 issue (p.918), discussing the matting for *Firefox*, describes and illustrates the creation of "matte-difference-mattes," the same process as that used for *Apollo 13* and *The Fifth Element*; in the *AC Manual*, Sixth Edition (p. 317) and Seventh Edition (p. 455), a more comprehensive discussion of the technique actually uses a spacecraft reentry scene as an example of where matte-difference-matte techniques may be applied. The *AC Manual* also notes the existence of the patent covering the process and the fact that a license is available (and required) to use it.

For the record, Reverse Bluescreen is still covered by Patent #4,417,791. The patent covers traveling matte photography—luminescing with phosphors (of all colors and generally via blacklight excitation) either or both the foreground subject and the backing field, and the extraction of mattes therefrom. Licenses (still available and still required) are now obtained from Composite Components Company, PO Box 421301, Los Angeles, CA 90042-1301.

CCC is the company I formed after the demise of Apogee Productions, where I served for many years as the R & D director. The company is primarily in the business of creating traveling matte technology, including the Digital series backings (Digital Green, Digital Blue, Digital Red, Digital Video Blue) recently awarded a Scientific and Engineering Award by the Academy of Motion Picture Arts and Sciences (Reverse Bluescreen received the same award in 1983).

There is essentially no difference between the unauthorized use of patented photographic methodology and the unauthorized use of computer software. Unfortunately, *AC*'s inaccurate reportage is the equivalent of announcing that Autodesk's 3D Studio Max or Adobe's Renderman have become "traditional" and "ho hum" and are thus effectively "freeware": it is likely to encourage still others to make free use of Reverse Bluescreen. This puts the unwitting infringer in needless jeopardy and

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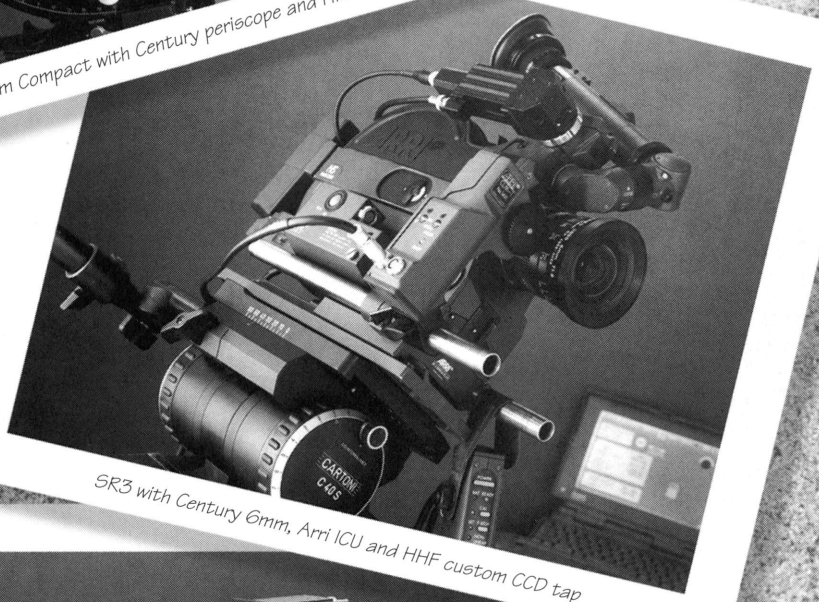

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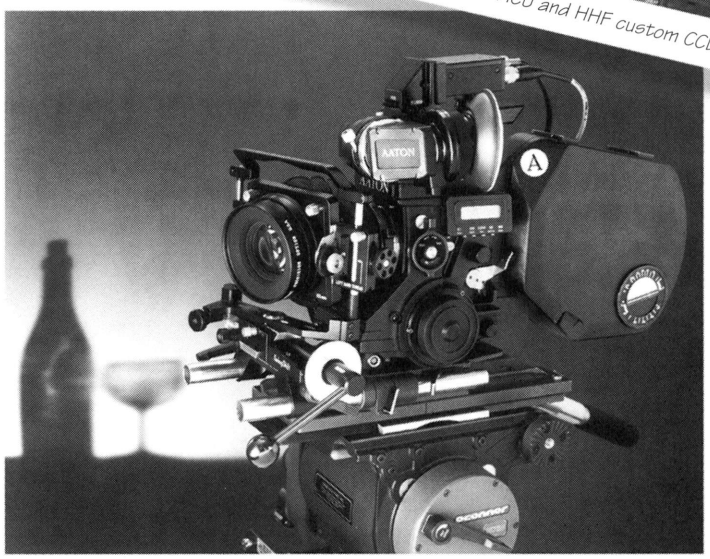

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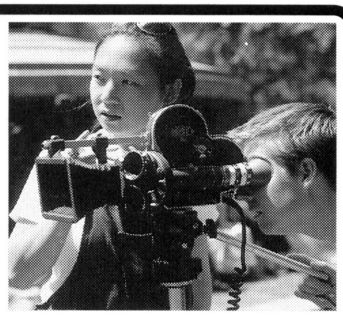

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deprives Composite Components of revenue needed for further research.

CCC is known for providing not only excellent technology, but a great deal of free, instruction and help in dealing with the myriad pitfalls that beset traveling matte photography. Much of this can now be found on our Web site (http://www. digitalgreenscreen.com), including all of the references cited here. Our continued ability to support the FX community is dependent on the very modest revenues we can derive from such sources as equipment rentals and technology licenses. It would be most helpful to all concerned if *American Cinematographer* would accurately report the origins and status of photographic technology and encourage its responsible and legitimate use.

— Jonathan Erland
Composite Components Company
Los Angeles, CA

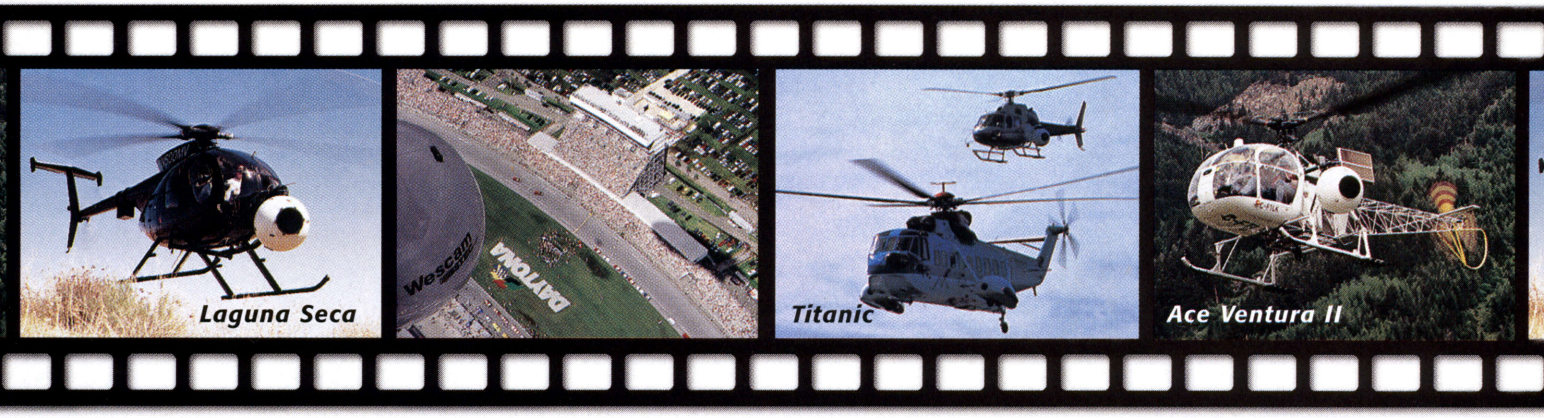
Still More on *Around the World in 80 Days*

Nearly two generations after the advent of the widescreen revolution of the early 1950s, we find the history of the great systems to be fading into both confusion and misunderstanding. In the February 1997 issue of *AC*, Frederick Szebin quotes *Around the World in 80 Days* director Michael Anderson as saying that the film was made in both Todd-AO and CinemaScope, as had been the case with *Oklahoma!*. In fact, *80 Days* was filmed with identical 65mm Todd-AO cameras and lenses, one operating at the then Todd-AO standard of 30fps and the other at 24fps. This eliminated the need for totally different setups, which were required by the very dissimilar optics used in the making of the two versions of *Oklahoma!*.

For its roadshow release in 70mm, the film was printed from the 30fps negative. For 35mm release, the film was printed from the 24fps negative.

Sadly, it would appear that the original 65mm Todd-AO negatives have deteriorated beyond any hope of restoration. Only 35mm duplicate negatives of the 24fps version seem to have survived.

— Martin Hart
Stafford, Texas



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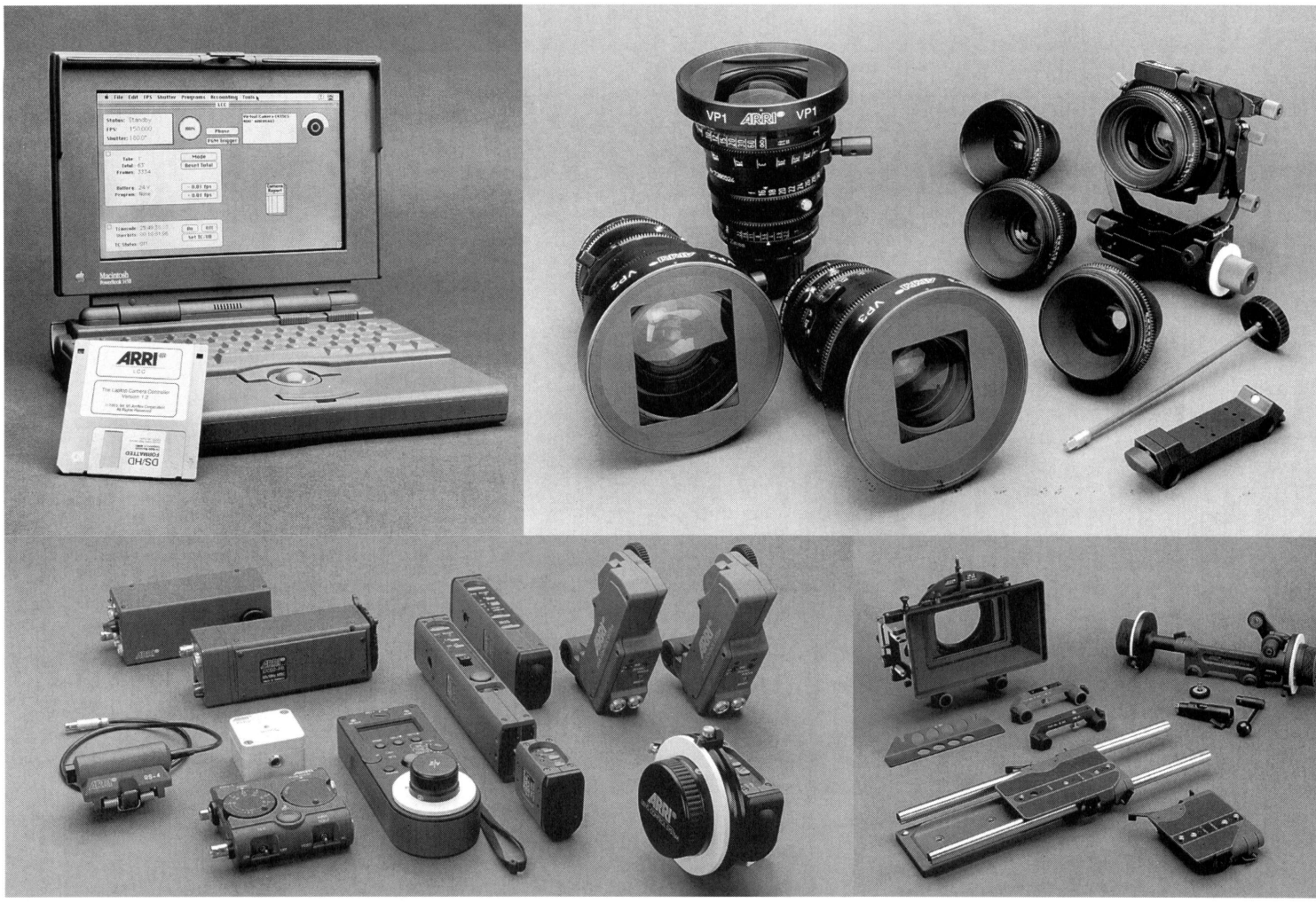

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compiled by Andrew O. Thompson

Above: ***Trent Reznor attacks with his ice dagger while well-placed backlights illuminate both the weapon and his breath vapor.*** **At right, clockwise from upper left:** ***an exotic Asian woman serves up a potent potable; an electrified chair adds shock value; Reznor's "trip" explodes in emerald hues.***

"Perfect" Images Earn Accolades

by David E. Williams

Cameraman Jeff Cronenweth was honored for his work on the Nine Inch Nails video "The Perfect Drug" at the sixth annual Music Video Production Awards (MVPA), held on May 1 at the El Rey Theater in Los Angeles. The other nominees for Best Cinematography were Carolyn Chen (Luscious Jackson, "Naked Eye"), Tim Ives (The Wallflowers, "One Headlight"), Jo Molitoris (Live, "Lakini's Juice") and Troy Smith (Erykah Badu, "On & On"). The NIN clip also received awards for director Mark Romanek and hair/makeup artists Cemal and Joanne Gair.

Cronenweth gained invaluable experience while assisting his father, Jordan Cronenweth, ASC, on such features as *Peggy Sue Got Married, Gardens of Stone* and *Final Analysis,* and on many commercial and music video projects. He remarks about the award, "I was so busy working that I didn't even know who was nominated until the week before the event. It was a great surprise, but the video winning had to do with a lot of elements coming together, including the art direction, costuming, and, of course, the direction. Mark is such an extremely bright fellow that it's hard to go wrong."

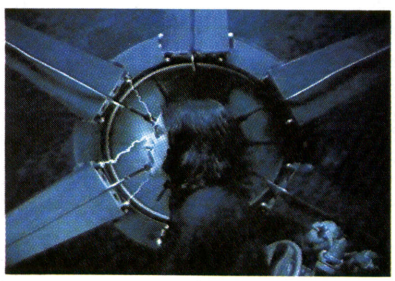
He recalls, "I first met Mark Romanek on the set of a Michael Jackson video that my father shot for David Fincher. A few years later, just as I was getting my first opportunities to shoot, I operated a few times for Harris Savides. One of those jobs was on another Jackson video, 'Scream,' which Mark directed, so we met again. Harris then got busy shooting *The Game* for Fincher. After seeing some of my other work, Mark called me in to do some videos."

Cronenweth and Romanek subsequently collaborated on clips for the alternative rock bands Eels and Weezer. The duo then tackled NIN's "The Perfect Drug," a cut from the *Lost Highway* soundtrack disc. The director had previously helmed a disturbing video for the NIN tune "Closer," with camerawork by Savides which was influenced by the images of still photographer Joel-Peter Witkin.

With lyrics expressing the yearning for an addictive love, "The Perfect Drug" video opens with melancholy frontman Trent Reznor and his band performing mechanically in a distressed Victorian salon drenched in gloomy blue hues. Abandoning their instruments, they appear in a succession of carefully choreographed and composed shots set in a Gothic theatrical world of painted skies and oversized props. Backing vocals are delivered by a pair of Asian women, one of whom offers Reznor a bottle of lustrous liquid on a silver tray. Enraged, he produces a dagger forged of ice and advances threateningly — his breath producing clouds of vapor as the ambiance suddenly becomes even colder. Reznor is then seen ceremonially pouring the liquid — revealed to be absinthe — which glows bright green in a glass goblet. After drinking, he is seated in an electrified chair which erupts with white arcs to form a halo around his head. As the drug takes effect, the room explodes in verdant, lightning-like flashes — ultimately returning Reznor to the indigo world where we first found him, albeit now deeper in despair.

Says Cronenweth of the video's hauntingly baroque style, "Mark is really big on doing image research and using references, so we first studied a series of work done by still photographers in the 1940s and '50s. The video was always going to be very dark and moody — although, as it turned out, it isn't as dark as most of our references were. We were both probably a bit more conservative on the set, but of course that could have been altered later during the transfer.

"Our lighting plan is easy to explain in that we wanted everything to be completely artificial and unmotivated. Practicals were practicals, but our setting was very unrealistic. For every setup in each vignette, we needed to create three lighting scenarios: something from the



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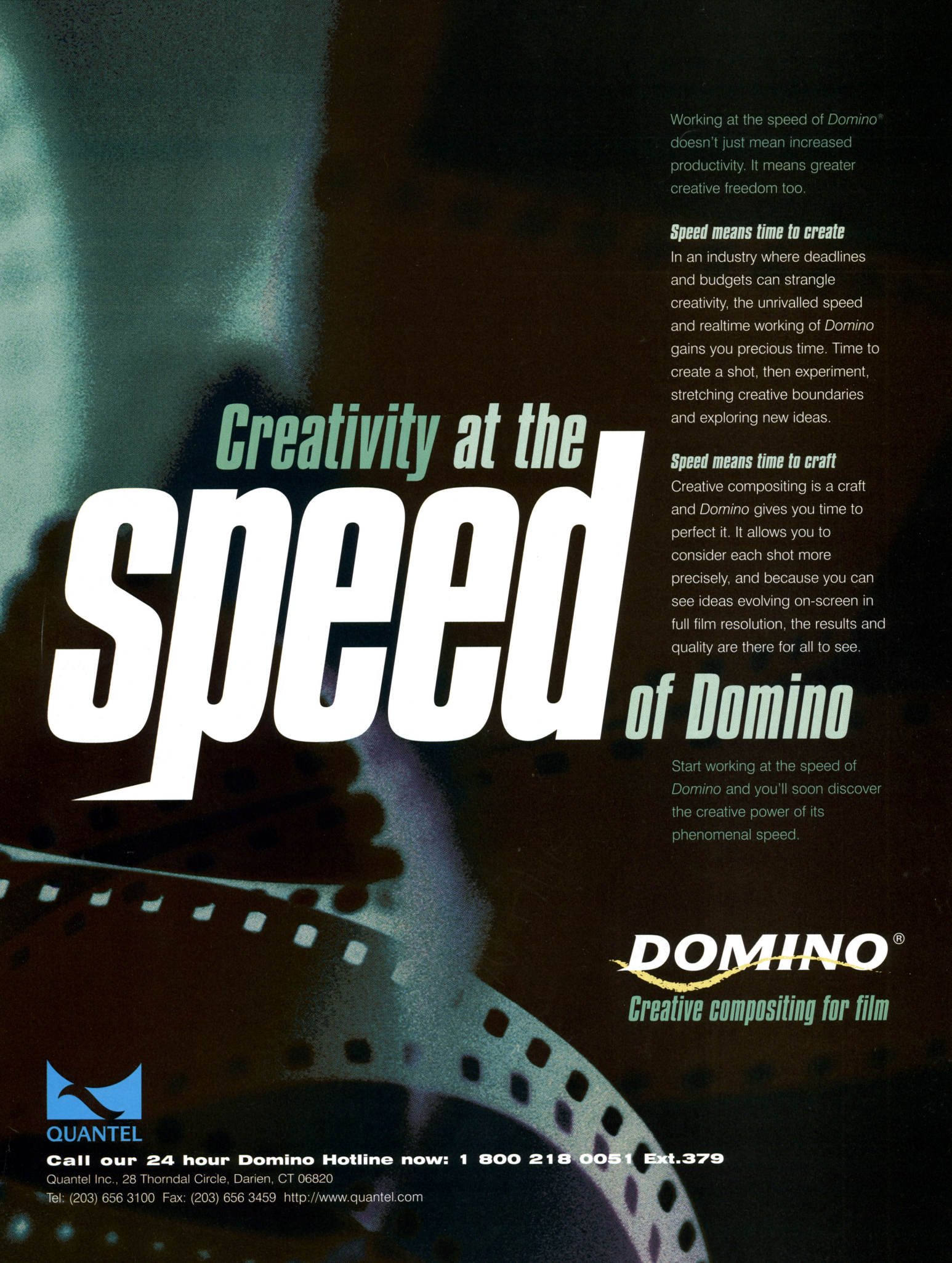
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top, something from the front, and then the green lightning effects. It was a long process, because the re-lighting took a lot of time."

Cronenweth had one lighting day to prepare for the following four shoot days, but Romanek's terse directorial style also helped keep the production on track. While kinetic and arresting, the video makes minimal use of camera movement. As the cinematographer explains, "The only time the camera moves is in a Steadicam shot that pulls back through an ivy hedge as Trent comes forward. Every other shot is locked off, and that's something Mark often does. He likes things to be clean, level and symmetrical, which allows the image to be the most important thing since there isn't any distracting or unnecessary movement. Tom Foden, our production designer, added a lot to that approach; the sets were really beautiful and interesting to shoot."

"The Perfect Drug" was shot with Panavision cameras and Primo prime lenses on Kodak's 5277 Vision 320T stock. "In hindsight, I would have used the [500T] 5279, because it gives you more [range in the exposure]," he says. "But I had recently done some second-unit work with Harris Savides for David Fincher on *The Game,* and we'd used quite a bit of the 320T, so I shot some tests and it looked really good." A consistently shallow depth of field was achieved by shooting at a stop of T2 to 2.3.

Adding to the clip's overall surrealistic effect was the strange metallic-patina fleshtones of the video's performers. "That was a combination of lighting and makeup," Cronenweth reveals. "Joanne Gair did a fantastic job with the makeup, which reflected a lot of light. Mark had done some visual tests with that effect when we were doing the prelight. We were using a lot of daylight Kino Flos with full CTB [for the opening and end sequences]. Refracting off the skin, that really brought out a morbid color. A bit more blue was added in the [telecine] transfer, but it was predominately there in the photography."

Subtle yet effective lighting enhances the sequence in which Reznor attacks with the ice knife. The scene itself was shot in a specially-built refrigerated room constructed on the production's main stage. "Our freezing units added a lot of humidity to the room, which resulted in a really good [steaming] breath effect," notes Cronenweth. "It was difficult to get a lot of backlight and crosslight on the breath to make it stand out, especially without also lighting his face, as he was moving so much. We tried to keep Trent very contrasty and side-lit in that shot. We ended up using multiple operated lamps, focusable ellipsoidals like [ETC's] Source Fours, which produce a very sharp beam. We also used them to backlight the ice dagger Trent was holding.

"You also have to keep in mind that we couldn't generate any heat in this room. It didn't take a lot to change the atmosphere in there, which ruined the breath effect. A lot of our lighting — from above and the side — came from outside the [refrigerated] set, which was built with translucent walls made of a hard plastic sheeting.

"It took many, many passes to get those shots right, and it takes an enormous amount of effort to breathe in a way that produces those clouds of vapor, especially while singing. Trent could only do one sentence at a time, and we went through the whole song, which was very difficult for him."

Clever backlighting again came into play for a shot of the glistening bottle of liquid being offered on a silver tray. As Cronenweth recalls, "Because the woman holding the tray was predominately top-lit and covered so much ground while walking forward toward the camera, it was impossible to keep a light behind the bottle. Instead, we glued mirrors behind it, which reflected the toplight and illuminated the liquid inside. That was a last-minute save we thought of on the set." Standard backlighting illuminated Reznor's emerald absinthe cocktail.

The electrical chair upon which Reznor sits was a prop built for the production, but its arcing discharges were merely an illusion. "The only way to do the effect for real is with Tesla coils," explains Cronenweth, "which could have been used if we had done two camera passes — one with Trent and another for the arcs — and combined them. To save time and money, we instead built a ring of interactive lights — using refrigerator-type bulbs, a dimmer board and relays — into the prop around where his head would be. The arcs themselves were

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added in post and timed to the firing of the lights."

Stroboscopic effects for the green-tinted "trip" sequence were realized with Lightning Strikes units. "We usually had five on each setup," the cameraman says, "each of them gelled with about six layers of full plus green. And while that did dampen the effect of the lights, it wasn't as much as you'd think. They're very powerful, and the sets were small. We also had to have the units very close to our subjects so we didn't have all kinds of strange shadows. We'd just set them up one by one, and adjust the densities of the flashes, sometimes by using black silks."

Asked for his opinion of the completed "Perfect Drug" clip, the cinematographer enthusiastically offers, "It's very dynamic, and it was also a terrific song. After four 18-hour days it gets a bit trying to hear the same song over again, but watching Trent perform was very exciting. Each take was a full rendition with a lot of energy, which really makes a difference." At press time, Cronenweth and Romanek had just finished a new video for The Black Crows.

The 11-year-old MVPA is a non-profit trade organization representing music video production companies. Its purpose is to promote and uphold the highest professional production standards, to provide an arena to share ideas and mutual concerns, and to educate its members about the latest developments in the music video industry. For more information call (213) 466-3080 or fax (213) 466-1517.

Mandela **Documents History in the Making**
by Eric Rudolph

"And now the world can dance because Nelson Mandela is free."
— "Mandela Day," Simple Minds

Though the term "living legend" is often bandied about carelessly, it's definitely an apt description for Nelson Mandela, the South African freedom fighter who endured a harsh 27-year imprisonment, won a Nobel Peace Prize, and became the first democratically elected black president of his long-beleaguered nation. But the documentary *Mandela: Son of Africa, Father of a Nation* demystifies this formidable persona through interviews with the man himself as well as colleagues and former political cellmates. Intercut with these first-person accounts is archival footage and a variety of stills culled from 100 hours worth of material, much of which exposes the true temper of the racist Afrikaner regime. *(Mandela,* which has been released theatrically in the U.S. and South Africa, was nominated for a 1997 Academy Award in the Best Documentary category.)

When native South African filmmaker Jo Menell *(Nothing to Lose, Life and Times of Bob Marley)* learned in 1992 that the stranger-than-fiction story of Mandela's life had not been slated for any sort of motion picture treatment, he lobbied the political pioneer for the opportunity to do so. After winning Mandela's approval and cooperation, Menell recruited the producing talents of director Jonathan Demme *(The Silence of the Lambs, Philadelphia)* for whose Clinica Estetico production company Menell had co-directed the documentary *Haiti: Dreams of Democracy.* On *Mandela,* Menell shared directing chores with Angus Gibson *(South Africa: 7Up, Soweto: A History).*

The filmmakers shadowed Mandela almost continuously for seven months, amassing some 200 hours' worth of footage. Access to the then-presidential candidate was not much of a problem since Mandela himself had sanctioned the project; he made himself freely available to the crew, particularly in the early stages of filming. "He was quite keen about the project and filming moved ahead smoothly. He was open and spontaneous, and seemed to enjoy

Photo courtesy of Island Pictures.

Director Jo Menell (right) consults with Nelson Mandela on location.

the whole affair," recalls director of photography Peter Tischhauser, SASC, who shared cinematographic chores with Dewald Aukema due to the documentary's immense scope, as well as his own prior commitments. ➢

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The shooting schedule, however, did not remain on such a smooth course. "As the elections drew closer, the pressure mounted rapidly — to put it bluntly, the country was burning," continues Tischhauser. "There were so many hiccups in the election process which needed his attention that if we'd tried to do our extensive interview sequence in South Africa, Mandela would have been interrupted every 10 minutes for some crisis. He also needed a rest, so plans were quickly hatched to get him away and for us to spend some time with him [in the Bahamas, where the crew shot interviews with Mandela 'talking head' style]."

Tischhauser has extensive experience as a cameraman on commercials and documentaries in his native South Africa; his varied resumé includes having shot war footage in the Thokosa township outside of Johannesburg ("where, on average, 57 people died per day in senseless violence") to an Emmy-winning documentary about pygmies, broadcast in America on ABC-TV. He received South Africa's highest technical prize for commercials — the Visible Spectrum Award — in both 1995 and 1996. He has also been honored at Cannes, and has earned Clios and New York Film & Television Awards.

However, trailing a national leader also revered as a cultural icon is no easy task; the film crew had to be as inconspicuous as possible. During the documentary's inception, theatrical release had not been a consideration, so video became the format of choice. Notes Tischhauser, "We wanted to work with a very small crew, without even an assistant cameraman, so we could be as discreet as possible. Therefore, we felt that film was out of the question. We correctly assumed that there would often be no setup time at all if we were to capture the highly fluid events we were covering. There was no time to wait to load a film magazine or to change a magazine every 10 minutes. If I'd known [our video footage] would later be transferred to film I would have proceeded somewhat differently."

Mandela was shot with a Betacam 400, which Tischhauser terms "the best video camera available at the time," outfitted with a standard 8.5-153mm zoom lens. Lighting was kept minimal for speed and simplicity's sake, and out of concern for a serious eye affliction Mandela developed from years of laborious excavation work in the highly reflective lime quarries of Robben Island (where he spent much of his incarceration). Explains Tischhauser, "We tried to keep the lighting as low-key as possible; To avoid irritating his sensitive eyes, I would never use direct light. The 15-hours of ['talking head'] interviews we did with him were shot wide-open at f1.7 with minimal lighting: one redhead bounced through a silk."

Mandela offers some rather elegant imagery despite the limitations of the half-inch professional video format. Photographic highlights range from the rich skies and rolling green hills that make-up the magical vistas of the Xhosa tribal homeland (in eastern South Africa) to extreme close-ups upon the eyes of school children transfixed by tales of young Nelson as related by Mandela's sister Mabel.

Whenever it was possible, Tischhauser utilized some simple techniques to enhance the video image. He manipulated the Betacam's color temperature to increase saturation in parts of the color spectrum, and used filters, such as enhancers, to boost the red spectrum. He often combined the enhancers with other filters, such as gradated light corals, to warm up exteriors. Otherwise, the documentary was shot more or less in straight ENG style.

In the end, Tischhauser found that filming *Mandela* was a once-in-a-lifetime chance to chronicle a crucial chapter in the history of his homeland. "It was a great experience and a privilege to be involved with this film, which was not a 'project' but a very important experience for me as a South African. The sense that we were witnessing history being made by one of the most heroic men of our time, and that we were with him throughout the day, was often almost overwhelming."

Adding Chill to Gotham City

In *Batman and Robin*, the diabolical actions of Mr. Freeze challenged production designer Barbara Ling and the Monrovia, California-based Alterian Studios to devise and manufacture complete bodies of 13 human beings suddenly frozen in time while performing everyday activities (see photo on page 35).

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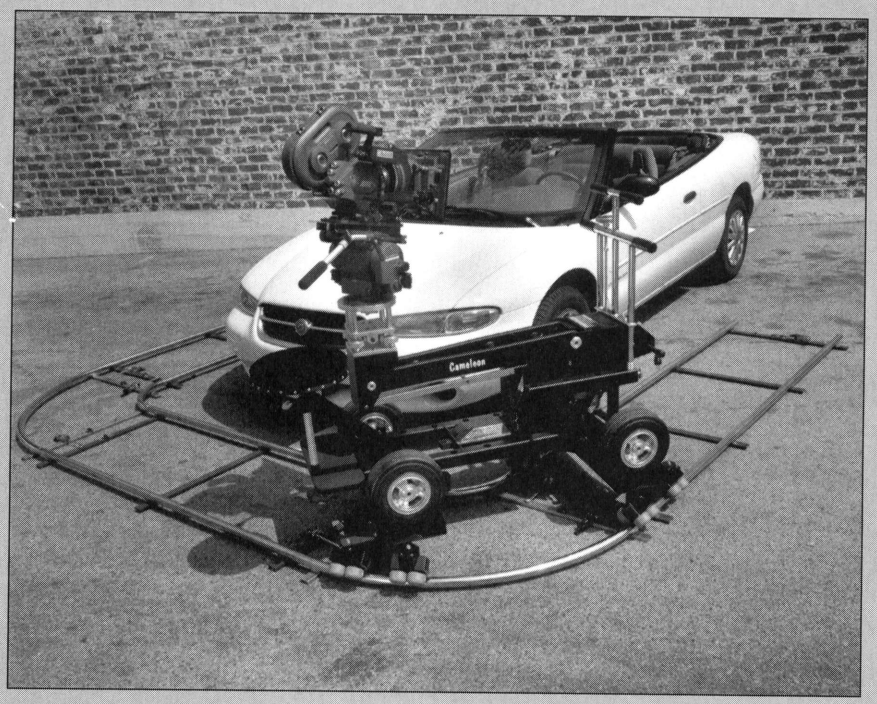

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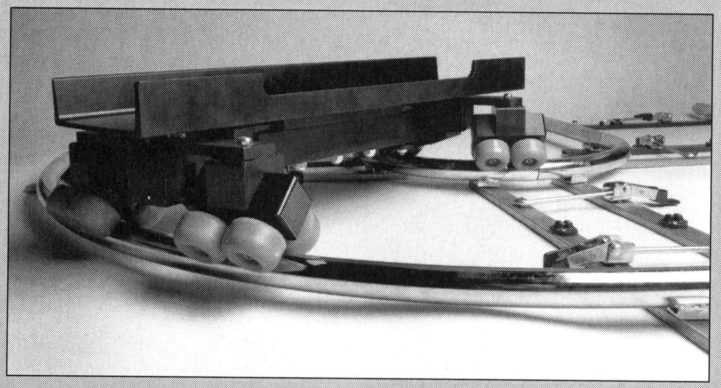

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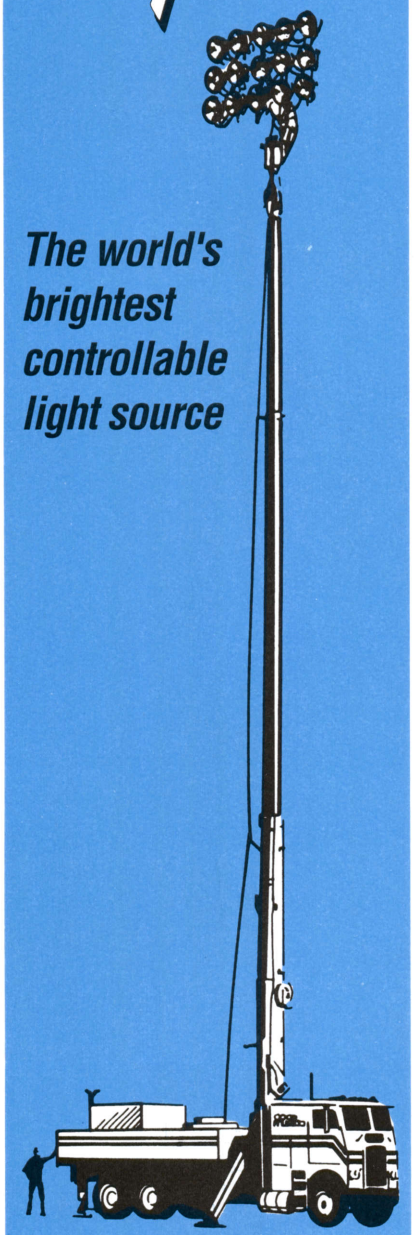
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manded that the bodies be lightweight and portable, but the ice surrounding each figure had to lend the impression of considerable mass, strength and depth. Working closely with cinematographer Steven Goldblatt, ASC, Alterian created a prototype frozen Gotham City trashman (known as "Bob") for film tests. Bob's prototype ice treatment was a combination of vacuform plastic, clear resin and clear acrylic which was coated with silicone and then dusted with mica flakes. Goldblatt backlit the frozen Gothamites from the sides to add richness and depth to the implied mass. Warm tones of light were used to suggest that these frozen characters might have a chance at a normal life if they were somehow to become "unfrozen."

According to Alterian Studios founder Tony Gardner, the interplay of light with textures also played an important role in fashioning Poison Ivy's Orchid Throne (see photo on page 46). At one point in *Batman and Robin*, the venomous villain is revealed sitting in an oversized mechanical flower pod which is suspended over water. Each of the throne's five flower petals is 12 to 16 feet in length and, when closed, conform around Ivy's reclining body. Once the flower completely opens to reveal Ivy, she is surrounded by a halo of soft light and is separated from the throne. This meant that the interior throne to the pod had to be translucent, and each of the surrounding petals had to have dark coloring in order not to distract attention from the character.

Alterian project supervisor Jim Beinke conferred with Ling extensively, and the resulting solution employed crushed black velvet on the petal surface, applied in a ribbed, angled pattern down the length of each petal. The velvet was trimmed and accented with iridescent beading, and the interior tips of the petals were covered with a rich, crushed cherry velvet. The beads and the cherry velvet matched the color of Ivy's wardrobe.

The throne itself was lit in a way that produced a "kick" from the petal tips and a glint from the beading, while allowing the ridged surface textures of the black petals to catch the light while they were in motion. "Defining the mass of a flower like this made it easy to use the plant's 'performance' as an extension of Ivy's mood," says Gardener. "A simple alteration in lighting would then allow the black petals to disappear into darkness during close-ups of our villain, eliminating distraction and focusing the shot where it should be: on Ms. Thurman."

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1997 Cannes Film Festival

At the 50th annual Cannes International Film Festival, the Palme d'Or was awarded to two films — Shohei Imamura's *The Eel* (Japan) and Abbas Kiarostami's *The Taste of Cherries* (Iran). Canadian director Atom Egoyan saw his adaptation of the Russell Banks novel *The Sweet Hereafter* win the Grand Prize (the runner-up award) as well as the International Critics Prize and the Ecumenical Jury Prize. The Best Direction award went to Hong Kong's Wong Kar-Wai for *Happy Together* (a.k.a. *Buenos Aires Affair*), his fifth collaboration with cameraman Christopher Doyle, HKSC. Kathy Burke earned Best Actress kudos for her work in *Nil by Mouth*, actor Gary Oldman's directorial debut, while Sean Penn received Best Actor honors for Nick Cassavettes' *She's So Lovely*. Cinematographer Thierry Arbogast, AFC earned the Technical Prize for his photography on Cassavettes' film, as well as on Luc Besson's *The Fifth Element* (see *AC* May '97). The Best Screenplay award was given to James Schamus for Ang Lee's *The Ice Storm*. The Jury Prize went to *Western*, a Gallic road picture directed by Manuel Poirier. The Camera d'Or (for best first feature) was conferred upon Naomi Kawase's *Suzaku* (Japan). Special commemorative awards were also bestowed at this landmark edition of the festival. The 50th Anniversary prize was presented to 71-year-old Egyptian director Yousef Chahine for his impressive body of work, and Swedish auteur Ingmar Bergman was honored with the Palme des Palmes, which was accepted by the director's daughter, Linn Ullmann, and her mother, Norwegian actress Liv Ullmann.

40th Annual CSC Awards

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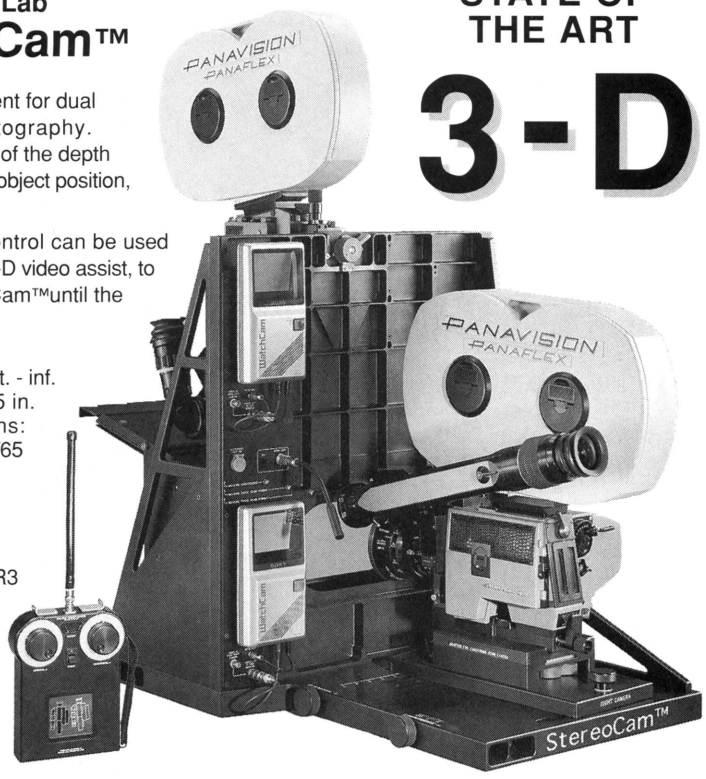

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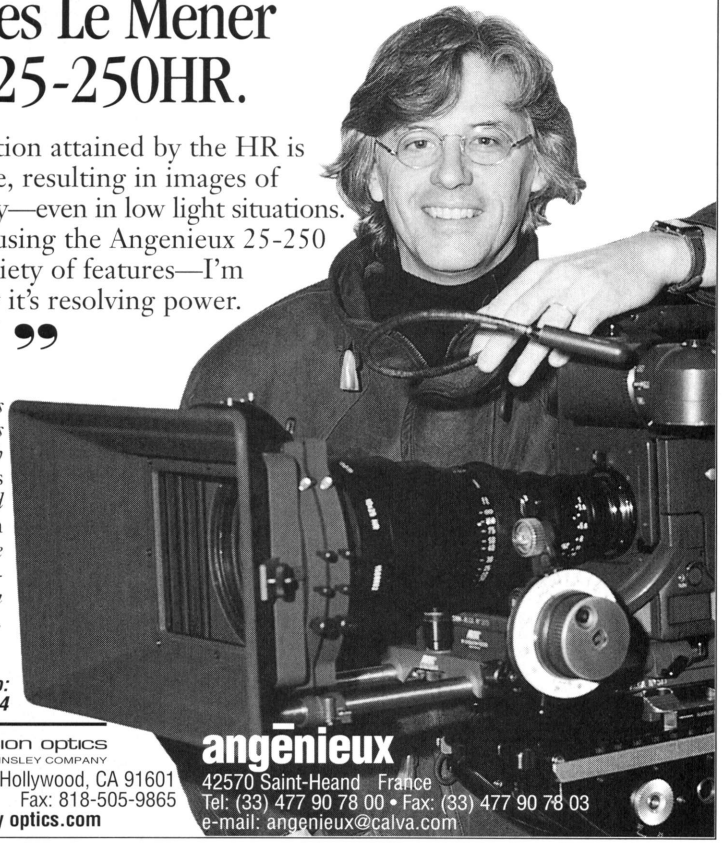
Le Mener served as DP for numerous Claude Lelouch films, including Les Miserables *and* Itineraire D'un Enfant Gâté. *He also shot the award-winning 1995 film* Les Visiteurs.



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Joan Hutton noted, "More than anything else, the legacy of 1957 has been the prominent place that Canadian cinematographers have taken as artists and creative technologists in the world of film and video...The many and various achievements of our talented members reflect brightly on the goals and ongoing work of the society, where we take pride in sharing our craft and sowing the seeds of early success. It is especially gratifying to see young people, both men and women, joining our ranks and growing as professionals. Maybe, sometime during the next 40 years, that new member of 1997 will be here picking up an award."

Canadian director Norman Jewison presented the award for Best Theatrical Feature to Serge Ladoucer, CSC for *La Nuit du Deluge (The Night of the Flood).* The other nominees were Peter Benison, CSC *(Bullet to Beijing)* and Andre Pienaar, CSC *(The Sadness of Sex).* Other victors included Len Gilday, CSC for documentary *(The Bald Eagle — Searching for Home),* Colin Hoult for industrials (SHL's *Software Factories)* and Philip Earnshaw, CSC for dramatic short *(Cleveland Wood's Last Day on Earth).*

Winning in the television categories were Robert McLachlan, CSC for series ("Gehenna," an episode of the Fox show *Millennium*), Barry Parell, CSC for commercials (the Silent Sam Vodka spot "Shadowland"), and Rene Ohashi, CSC for drama *(The Arrow).* Ohashi was also honored with Kodak's New Century Award for lifetime achievements in cinematography. The Stan Clinton Award for best TV news essay was given to Chris Gargus of CBC Toronto *(Playing Pool)* while Douglas Gamey of Global Toronto garnered the Roy Tash Award for best TV news cinematography *(Queen's Park — Student Rally).* Herbert Alpert, CSC, ASC, who founded the CSC in 1957, was given the Fuji Award in recognition of extraordinary contributions to the CSC. The Bill Hilson Award for outstanding service in the development of the motion picture industry went to Don Hall, the President of Cinequip Incorporated. Ernie Kestler earned the Camera Assistant Award of Merit, and Erik Nordby of Simon Fraser University won recognition for student cinematography honors with the film *Loop.*

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Pictured on the set of "Savannah" are Jacqueline Nivens, 2nd AC; Joe Thomas, 1st AC; Fred Thomas, Loader; Brian Gurley, Operator; and sitting in front, Frank Johnson, Director of Photography.

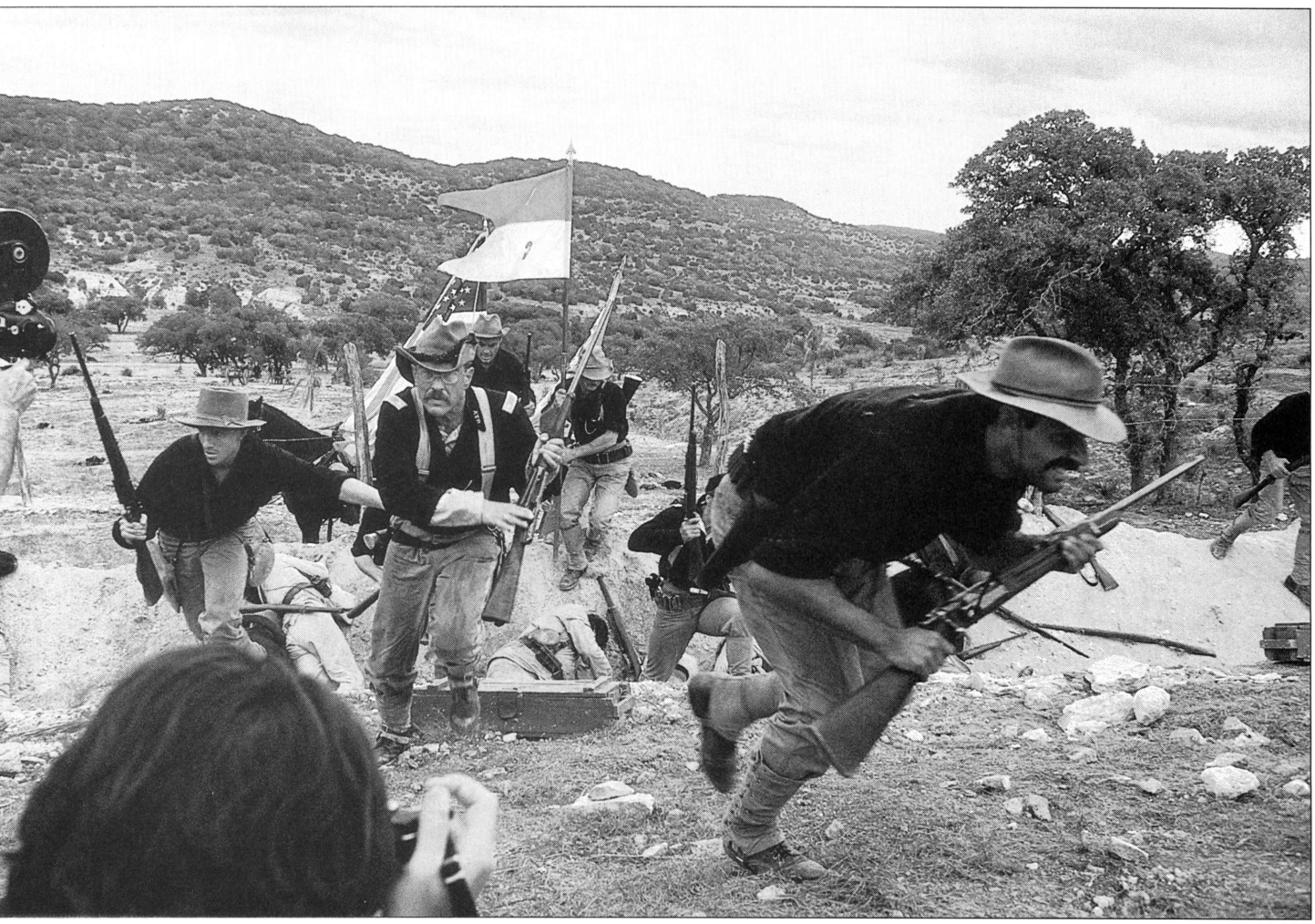
Carry a Big Stick

Director John Milius and cinematographer Anthony Richmond, BSC revisit the Battle of San Juan Hill in TNT's *Rough Riders*.

by Jean Oppenheimer

On a late October morning, a section of South Texas is doubling for Cuba circa 1898 during production of director John Milius' *Rough Riders*, a Turner Network Television (TNT) film detailing the first American conflict to be fought on foreign soil — the Spanish-American War.

From a distance, the combatants resemble toy soldiers. Clad in blue shirts and brown canvas pants, with rifles resting against their shoulders, the men strut across unfamiliar Cuban backroads towards San Juan Hill. Despite their similar uniforms, the servicemen hail from disparate American stock — Southern coal miners, frontier cowboys, Midwestern shopkeepers and aristocratic sons of the Eastern establishment. But together they form the First U.S. Volunteer Cavalry, better known as the Rough Riders, which, under the command of a future American president — Lieutenant Colonel Theodore Roosevelt — led the United States to victory during the Battle of San Juan Hill. (In actual fact, Roosevelt and his troops stormed Kettle Hill, which comprised a section of a long ridge along with the adjacent slope. The bloody hostilities, however, lasted less than a day. San Juan Heights was captured by the 10th Cavalry regiment — the legendary Buffalo Soldiers — a unit of African-American soldiers under the command of Lt. John J. Pershing of World War I fame. The two victories are generally referred to simply as the Battle of San Juan Hill.)

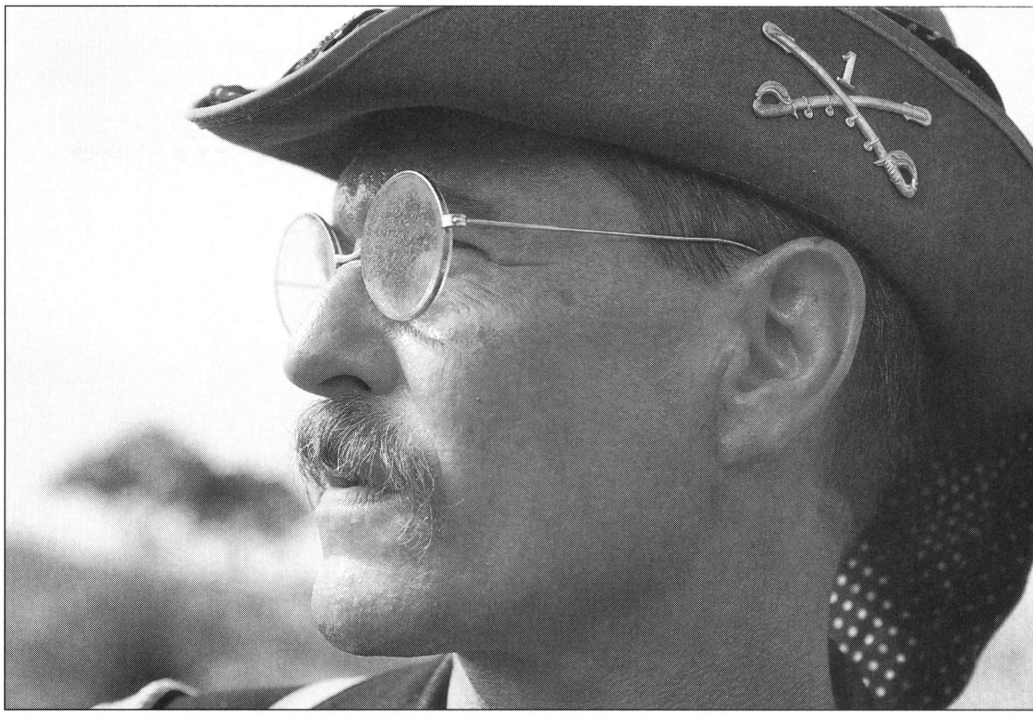


Members of the First U.S. Volunteer Cavalry charge forth on Cuban territory while Richmond (far left) captures the action with his Arri IIC. This particular skirmish — the Battle of San Juan Hill — was actually filmed in sections of southern Texas.

Photos by Clive McLean, courtesy of the photographer.

It's been raining intermittently on this steel-gray autumn morning, and Milius and cinematographer Anthony Richmond are debating about whether to risk filming the hillside assault. Despite the unsavory weather conditions, the decision is made to proceed. Four cameras are then positioned along the rocky terrain, facing down toward the soldiers as they march up the hill. Remarks Richmond, "Going up the hills, I shot the whole scene backlit, with entirely natural light. I always prefer to use natural light. We would shoot in one direction in the morning, and then the other way in the afternoon."

Milius perceives this film as a classic American war story, noting that "a bunch of disparate people are brought together, train and then get sent on a dangerous mission." Best known for his films about the trials of warfare — writing the screenplay for *Apocalypse Now* and directing *Red Dawn*, *Farewell to the King* and *Flight of the Intruder* — Milius chose to emphasize the great sense of camaraderie the soldiers developed during their six-month tour. He submits, "This film isn't about glory and macho; it's about the love of men for each other under duress."



Above: ***His glasses encrusted with dust, actor Tom Berenger portrays Lieutenant Colonel Theodore Roosevelt.*** **Center:** ***Milius (in hat) plots a shot with Richmond.***

Rough Riders marks the second time that Milius and Richmond have worked together, following a prior collaboration on a segment of Showtime's *Rebel Highway* series [see *AC* Oct. '94]. The British-born cameraman began his career with Pathé News in London before turning to feature films. Before advancing to the rank of director of photography, he served as a camera assistant on a number of classic films, including David Lean's *Doctor Zhivago*, François Truffaut's *Fahrenheit 451*, John Schlesinger's *Far from the Madding Crowd* and the James Bond thriller *From Russia with Love* before becoming a director of photography.

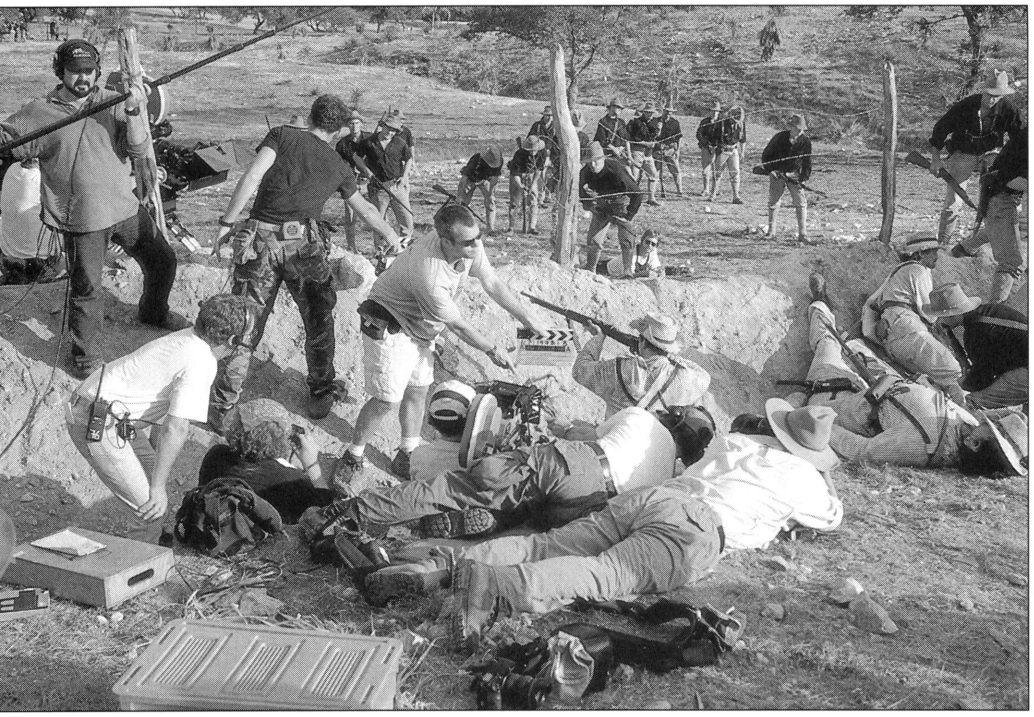
In addition to shooting such recent features as *First Kid*, *Tales from the Hood*, *Bastard Out of Carolina* and the upcoming Buena Vista film *Playing God*, Richmond has enjoyed a long collaboration with cinematographer-turned-director Nicholas Roeg, for whom he shot *Walkabout*, *Don't Look Now*, *The Man Who Fell to Earth*, *Bad Timing/A Sensual Obsession* and a cable movie adaptation of the Joseph Conrad novella *Heart of Darkness*.

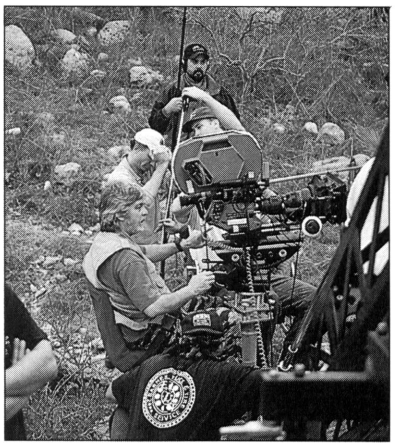
Although the cameraman had worked frequently in the United States, he moved permanently to this country in 1980.

Richmond envisioned a distinct look for each act of *Rough Riders*. The opening section, which includes a stagecoach robbery, is set against the panoramic vistas of the expansive frontier range. Milius, an avid fan of director John Ford, wanted these scenes to reflect that director's sense of cinematography and composition. "Ford lit with lots of crosslight," Milius points out. "Tony prefers to backlight, but [on *Rough Riders*] he used more crosslight, and the light comes from low angles. We never shot anything with the light straight on. [In his framing], Ford used lines descending and diagonal lines so viewers could see down long perspectives. It gives the scene a kind of epic sense."

Richmond sought a dark, oppressive feel reminiscent of *Heart of Darkness* for scenes involving the cavalry's training sessions in dense forest areas and subsequent skirmishes in the Cuban jungles. The cinematographer explains, "These soldiers came from the Wild West and the Eastern seaboard. They weren't used to jungles. Hollywood tends to make jungles rather beautiful, with flowers, greenery and dappled sunlight. But they aren't like that in reality — they're dark, depressing and scary."

In capturing the climactic Battle of San Juan Hill, the filmmakers referenced the golden hues of Frederic Remington's famous paintings of the actual Spanish-American conflict. (Media magnate William Randolph Hearst sent Remington to Cuba to sketch the war for the *New York Journal*.) The Rough Riders had stormed Kettle



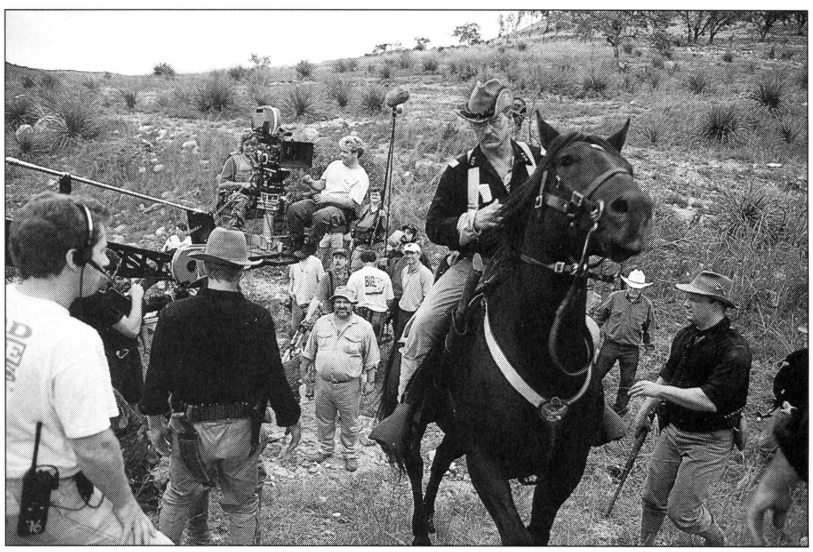


Above: Dual camera setups cover battlefield action in the trenches. Top right: Richmond operates one of his Moviecam rigs, which he lauded for their ability to take physical punishment. Bottom right: Richmond cranes in over the rough Texan terrain.

Hill and San Juan Heights in a single day; Richmond had to make the cinematic assault, shot over 10 days, appear as if it occurred over the same 24-hour period.

The conflict's wide shots were illuminated primarily with available light. Lamps or bounce boards were pressed into service for shots requiring closer coverage of the major characters. "We had 18Ks and 12Ks, and sometimes used a 4K or 6K Par," explains gaffer Mick McNeely, who had previously worked with Richmond on *Bastard Out of Carolina*. "We would use that for fill, with maybe a quarter straw and some 4' x 4' diffusion frames in front of the lamps." Straw gels also proved essential. "We used the Rosco straw series," adds McNeely. "As the sun began to go down at the end of the day and the existing light started to get a bit golden, we would add a ⅛ straw, [then switch to] a ¼ and eventually a ½."

The light, however, would sometimes fade to a bluish hue during the sun's descent below the horizon; the straws were then removed, and a ⅛ blue [gel] was sometimes added as a compensation for the discrepancy in color tone. "It's a matching game," explains McNeely. "You're trying to make the artificial light match the existing light that the sun is giving you. As long as you have a consistent look, the color timers can later make necessary adjustments from scene to scene."



At this point in the production schedule, the clocks had just been turned back an hour, marking the end of daylight savings time. Given that 80 percent of the film consists of daylight exteriors, the shortened days proved a constant inconvenience to the production. Darkness fell at 5 p.m. at this particular location, just outside of Bandera, and the sun didn't get high enough in the sky to start shooting until 8 a.m. To take advantage of every possible moment of daylight, the crew worked on the schedule of a French film crew: 10 straight hours with no formal lunch break. (Caterers brought food to the set instead.)

Two weeks prior to the filming of this sequence, Milius, Richmond, the stunt men and the special effects team had a meeting in which the director used a topographical map to block out the battle plans. The assault itself was filmed with five cameras. "We wanted to keep the battle scenes fluid," says Richmond. "The battle is always on the move from the moment the men come over the trenches." Dolly tracks were laid out whenever possible, and the handheld shots suggesting the soldiers' point-of-view were kept smooth to indicate a sense of urgency.

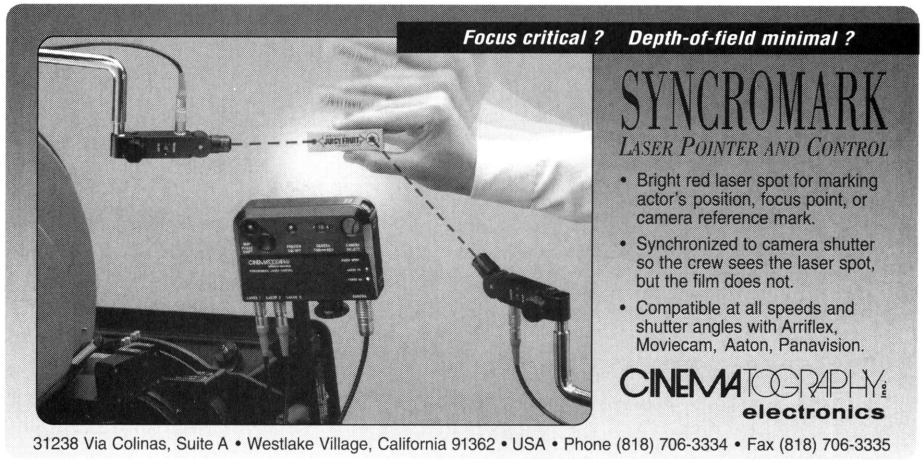
Richmond generally kept

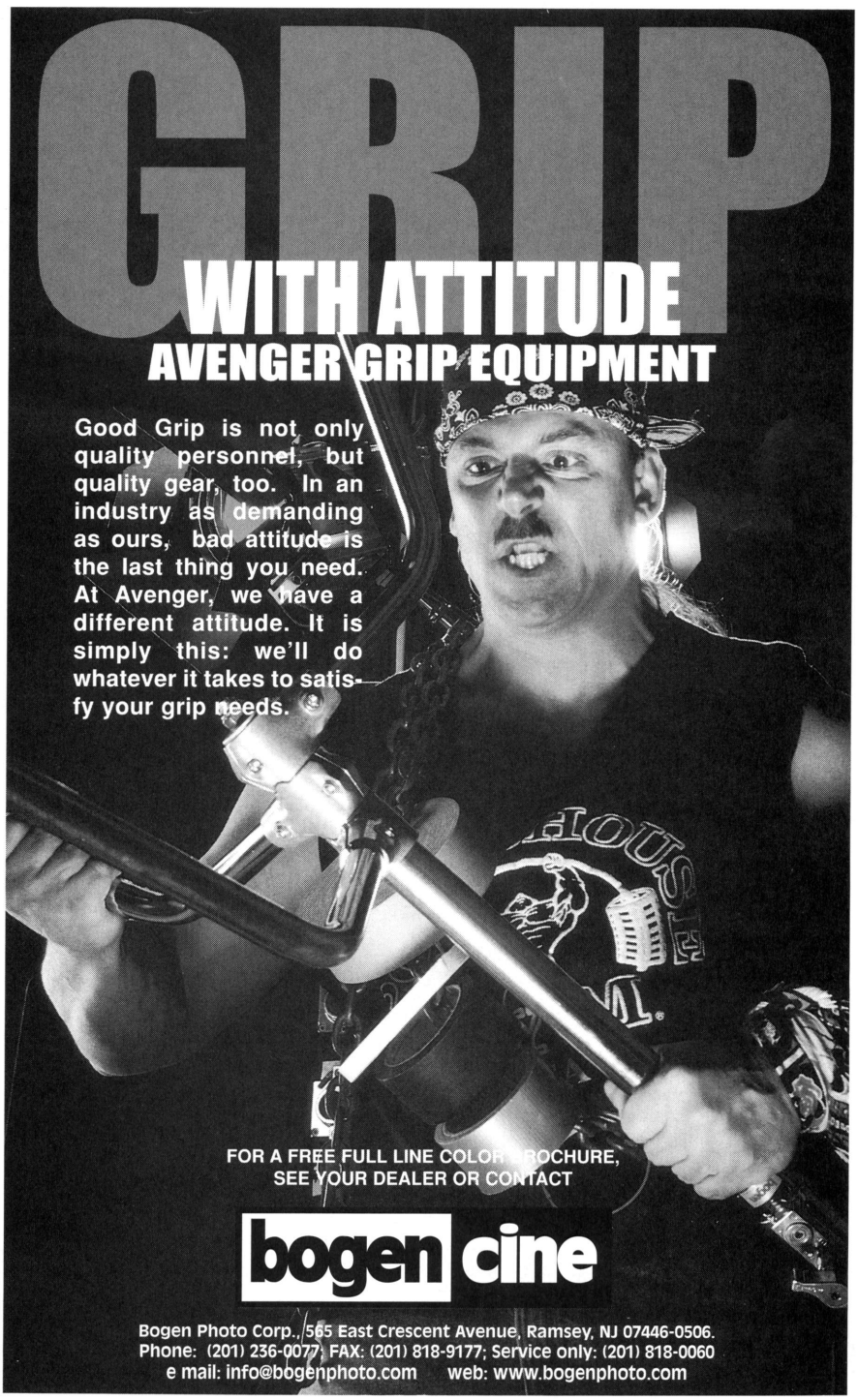
a Cooke 5:1 zoom on the A-camera, and either Zeiss Primes or Cooke 5:1 or 10:1 zooms on the other four. The lenses' zoom functions weren't used within shots, however, other than in conjunction with dolly moves, tracks or pans. Richmond selected Moviecams for the production, and enthuses, "They are so sturdy, and can take such a lot of punishment." The cinematographer also occasionally wielded his old Arri IIC for close-in coverage.

With hundreds of extras and constant action in both the foreground and distance, Richmond wanted everything seen in the frame to be sharp. The cameraman went with deep focus even for the interiors, all of which were shot at real locations. "Even with interiors, I like to shoot at a deep stop because I just like to see everything [in the frame]," he says. "Other cameramen might shoot at T1.3, but then you might as well not have a production designer or art director, because the actors are sharp and everything else is soft. On interiors I would shoot at T5.6, and outside I'd shoot at T11."

Many of the interiors were shot in historic buildings in San Antonio. While the structures themselves provided beautiful settings, the filmmakers weren't permitted to rig anything on the ceilings or walls. "We weren't allowed to put up a wall spreader or anything," recalls Richmond. "It became a nightmare. I had to light everything through the windows. Consequently, I used Kodak 5298; I needed the speed." The 500 ASA 98 was also used for night exteriors, while day exteriors were shot on 5247.

Floor lamps could be used in the historical buildings if there was space, but there was simply no room for the fixtures while doing a wide shot inside San Antonio's Scottish Rites Temple. Richmond solved the dilemma by floating two large helium balloon lights. One was concealed behind a chandelier which hung from the center of the 30' ceiling, and the other floated behind a column. Both the chandelier and the column are seen in frame, but the balloons remain completely hidden. Richmond, who employed hard sources like





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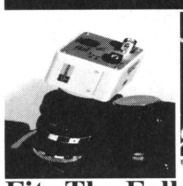

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Fresnels for interiors whenever possible, had previously used a more rudimentary version of the light balloon concept. "For several years, we had been filling big balloons with gas, floating them up 30 feet and bouncing HMIs off of them. It's like a big bounce light, which is all well and good except when the wind blows," says the cameraman.

Gaffer McNeely had actually utilized French-made Leelium balloons (provided by London's Lee Lighting) last year on Bernard Rose's *Anna Karenina*, which was shot in Russia. The fixtures had originally been devised to light areas above road construction projects, but they soon become a popular means of providing soft, general illumination at outdoor parties. "The balloons contained 4,000 watts of tungsten light in an approximately seven-foot diameter helium balloon," explains McNeely. "We were using European equipment on *Anna Karenina*. Europe uses a 220-volt system. If you wired the balloons with standard American-style voltage, you'd only get 2,000 watts out of them. On *Rough Riders*, we used a separate generator which we had wired in at 440 volts, which splits into 220 per side — you use a smaller size wire to get the full voltage out of them. Once the balloons are properly inflated, they weigh literally nothing. An electrical cable runs out of each one, and we would use a black trick line — in Russia we often used fishing line — to tie them off to the side, since you have to run the wire outside your shot."

The Leelium balloons had been rented out to other shows by the time *Rough Riders* went into production, so the filmmakers instead purchased similar lights that someone had spotted in a renovators' magazine called *Old House Journal*. Fortunately, these fixtures, which were being advertised for use at garden parties, were manufactured in nearby Fort Worth.

One of the most striking sequences in *Rough Riders* consists of a series of slow-motion images and dissolves that occur after the volunteer soldiers have boarded a train for the journey from Texas to Florida (where they will catch a boat to Cuba). As the train steams by in close-up, dozens of hands reach out to grasp the hands of wives and loved ones standing on the platform. The sequence was shot at 40fps to give it a haunting, almost poetic quality. Richmond played with camera speed on a couple of other shots as well, usually at 28 or 30fps, to lend a subtle edge.

Despite the periodic bursts of rain plaguing the production, the shooting schedule only had to be reshuffled twice. "The producers kept saying we could use two night interior scenes for cover sets," says Richmond. "The problem was that they weren't really interiors because the characters were sitting outside military tents around a campfire. In Houston (which was doubling for the Cuban forest), we set up a large canvas tent; it was 12 feet high, but we needed one that was 25 feet high. It took a long time to set up the lamps to get the backlit look I wanted."

Set dressers then brought jungle foliage into the larger tent, and set it up around the tent within the tent to simulate the look of an actual exterior. An even bigger irony was that both cover set scenes — one in Houston, the other in San Antonio— called for rain. "While it was raining *outside*, we had to create rain *inside*, under the tent," says Richmond with a shake of his head. "You could hear the rain hitting the cover tent."

Richmond jokes that Milius' favorite Viking war gods, Thor and Odin, must have been watching over the production, since it progressed so smoothly. The filmmakers managed to shoot a three-hour movie consisting of a dozen major characters, hundreds of extras and ambitious battle sequences on a 48-day schedule. Milius ponders this complex undertaking, and then says with a grin, "This is one of those movies where when you're done you say, '*How* did we do that?'" ◆

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Heavy Weather Hits Gotham City

In *Batman and Robin*, two new villains — the icy Mr. Freeze and sultry Poison Ivy — allow director Joel Schumacher and cinematographer Stephen Goldblatt, ASC to take their visual strategy to polar extremes.

by Stephen Pizzello

Photos by Christine Loss, courtesy of Warner Bros.

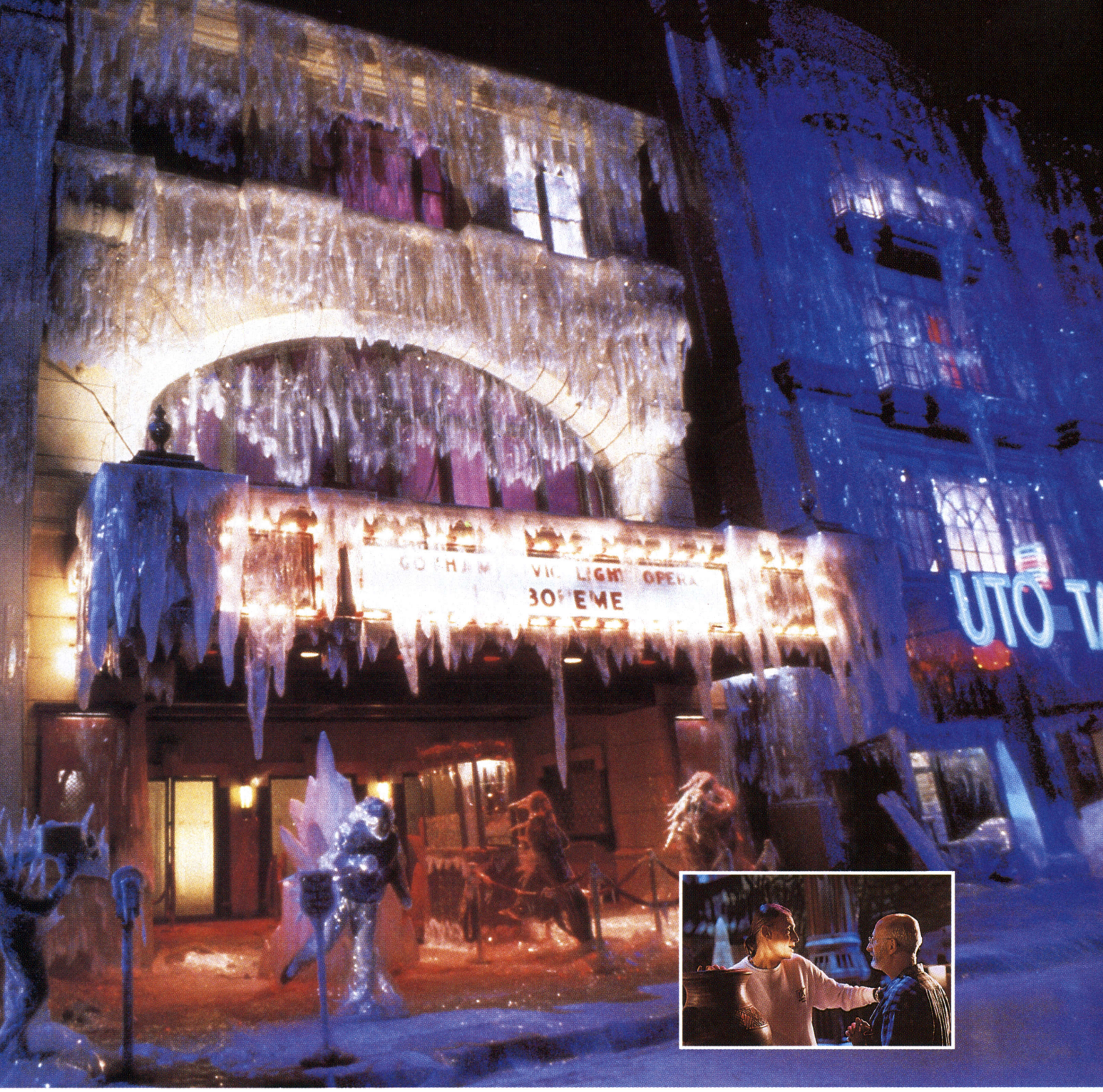
Audiences the world over know that warm weather always precedes another visit to the Batcave, and it's a trip that few can resist. *Batman*, *Batman Returns* and *Batman Forever* have all proven that the Caped Crusader's appeal is magical and enduring, no matter who dons the cowl [see respective stories in *AC* Dec. 1989 (effects only), July '92, July '95]. In this summer's installment, *Batman and Robin*, rising star George Clooney (of television's popular *ER* series) will take the "Baton" from Val Kilmer, who succeeded Michael Keaton.

The new Batman once again fights crime with his faithful sidekick, Robin (Chris O'Donnell), but he is also joined by Batgirl, a.k.a. Barbara Gordon (Alicia Silverstone). Their mission? To save Gotham City from the nefarious schemes of two allied super-villains: the coldly calculating Mr. Freeze (Arnold Schwarzenegger) and the florid seductress Poison Ivy (Uma Thurman). Freeze, true to his name, threatens to turn Gotham City into a permanent snowscape, while Ivy distracts the local superheroes with her amatory allure.

The Dynamic Trio: Batgirl (Alicia Silverstone), Batman (George Clooney) and Robin (Chris O'Donnell).

Recognizing a successful team when he sees one, executive producer Peter MacGregor-Scott reassembled the same band of artists that led *Batman Forever* to the top of the box-office charts in 1995. This core group included director Joel Schumacher, cinematographer Stephen Goldblatt, ASC, production designer Barbara Ling and visual effects supervisor John Dykstra, ASC.

Asked to assess his feelings about tackling another *Batman* spectacular, Schumacher offers, "Just because you climb Mount Everest and come back alive doesn't mean that you won't fall off the next time you try it. I don't think you can ever be cocky, but you do have to have a certain amount of arrogance and con-



fidence to even attempt the climb. Some part of you has to believe that you're going to get back alive, or you're not going to do it.

"Even though *Batman Forever* was the third Warner Bros. Batman movie, it was the first for all of us, and we changed the approach significantly; we did our version, never knowing that it would be so successful. We got an awful lot of approval from that film, so this time around, we thought, 'Well, if they liked that, let's go further.' I'd had a lot of fun on the first one, and I thought it would be exciting to try to do it bigger and better."

The picture's director of photography, Stephen Goldblatt (who earned both ASC and Academy Award nominations for his lush work on *Batman Forever*) responded enthusiastically to Schumacher's gung-ho, can-do attitude. "On this film, Joel encouraged me to go much further in the comic-book vein than we had before," says Goldblatt, whose credits also include *Outland, The Hunger, The Cotton Club, Young Sherlock Holmes, Lethal Weapon 1* and *2, Joe Versus the Volcano, The Prince of Tides* (which earned him both ASC and Academy Award nominations) and *The Pelican Brief*. "Creatively, this job was fantastic, because I was allowed to do a lot of new stuff. Because it was essen-

Schumacher and Goldblatt (inset) conspired to place Gotham City in a deep freeze on the Warner Bros. lot.

Schumacher says that the look of classic Batman comic books influenced his visual approach to the film. Here, our heroes are imprisoned in giant ice cubes by Mr. Zero, who was later renamed Mr. Freeze.

tially the same creative team, our shorthand was better, and so was the integration between the digital effects [see sidebar p.38] and the live action. It was like starting on day 101 of *Batman Forever*."

Schumacher says that his visual approach to *Batman and Robin* was influenced by the work of various D.C. Comics artists (particularly Frank Miller, Tim Sayle, Dave McKeon, Simon Bisley, Scott Hampton and Alex Ross), but also by the tongue-in-cheek, Sixties-era James Bond films. "The villains dictated a lot of this film's tone," he says. "Batman, Robin and Batgirl react to the evil that is at large. The best thing about the *Batman* villains is that they have no shame; they *love* being evil. Likewise, in the Bond films I really enjoy, the early ones, the villains are larger than life — Dr. No, Goldfinger, Rosa Klebb. In some movies today, the villains are really oppressed by their own madness. But Batman villains are narcissistic exhibitionists about it. They have fantastic names that they give themselves, they wear these outrageous outfits, and they do outrageous things. They don't just sneak in and steal something, they sort of make *The Rocky Horror Picture Show* out of it.

"I thought Mr. Freeze and Poison Ivy were the perfect pairing, because he's in this frozen world, and she's this seductress, this hothouse flower," Schumacher continues. "In the film, Mr. Freeze creates this scary winter wonderland in Gotham. The usual way ice and snow is done in movies is to be very gray and dark and gloomy. But I thought that would be less interesting than the approach we eventually took. In my discussions with Barbara Ling and Steve Goldblatt, I mentioned the way the aurora borealis works with the ice and snow at the poles, with this refracted light, this almost blinding effect. I didn't want Mr. Freeze to be dreary and somber, I wanted him to be more like Thor the Thunder God of the North — dazzling and frightening.

"Poison Ivy, meanwhile, is a beautiful woman who exudes this irresistible pheromonal attraction. No man can resist her, but if you kiss her, you die, because she has poison on her lips. The character was created in the Sixties, but she's a very modern villainess — she's an eco-terrorist, and she puts the ecology of plants and flowers above humanity. She doesn't care if everyone dies as long as the plants and flowers survive. She has *plans*. In the story, she takes over the old Gotham Turkish Baths, which is a defunct place that's occupied by a gang. There are all of these swooning Arabesque statues covered with all of her hothouse flowers, and limpid pools with water lilies you can walk on.

"These two different characters gave us two opposites to work with — the sub-zero world, and the hothouse world," the director concludes. "It was a real challenge for Stephen, especially the scenes in which Freeze and Ivy are together in their shared hideout. One half had to be frozen and the other had to be warm, seductive and magenta-like. It involved quite a range of lighting."

To achieve that full spectrum, Goldblatt once again worked closely with lighting designer John Tedesco, who specializes in elaborate computerized rigs designed primarily to illuminate rock concerts and theatrical productions. Given that the duo's efforts together on *Batman Forever* produced some truly fantastic results, Goldblatt decided to use the technology even more extensively in the new film. The cinematographer reveals that the computerized rigs also helped to overcome logistical challenges posed by the stars' schedules. "George is on *ER*, so we had to work with him on Friday, Saturday and Sunday, and we had a time limit of just over six weeks with Arnold," Goldblatt relates. "We had to work completely out of continuity, because we almost never had the two of them on the same set. Normally you go onto the same set once or twice, but our first unit — never mind the second unit — went onto some sets as many as 11 times, using doubles to shoot over-the-shoulders and stuff.

"The continuity problem was helped by the fact that we were using computerized lighting about 75 percent of the time, as opposed to 25 percent of the time on *Batman Forever*. I used every imaginable kind of unit, sometimes on sets where normally I never would have used them. I'd gained experience on the last film, so I brought that type of lighting into many more scenes. I played with my color temperatures quite a bit on this film. Because most of these theatrical-type lamps are daylight-balanced, we had to shoot daylight throughout — even though we were on interior sets — and correct it later in the lab. Eastman Kodak's Vision 5279 stock, which I used on most of the picture, worked very well for that. I used 5293 for greenscreen work or other effects applications."

Acknowledging the logistical difficulties inherent to a film of such an elaborate scale, Schumacher notes that close interaction between key crew members was crucial to the project's success. "The toughest thing on a movie this size is communication," he maintains. "Between the two *Batman* movies, I had done *A Time to Kill* [see *AC* August '96], which was filmed in a small town in Mississippi. It was still a Hollywood production with a large ensemble cast and a large crew, but we had one-tenth of what you have on a *Batman* picture. The *Batman* movies are the only ones I've ever directed where I didn't know every [cast and crew person's] name. There were days on the set when someone would walk up to me and say 'Good morning,' and I'd have to ask my assistant who it was — and sometimes *he* didn't know!

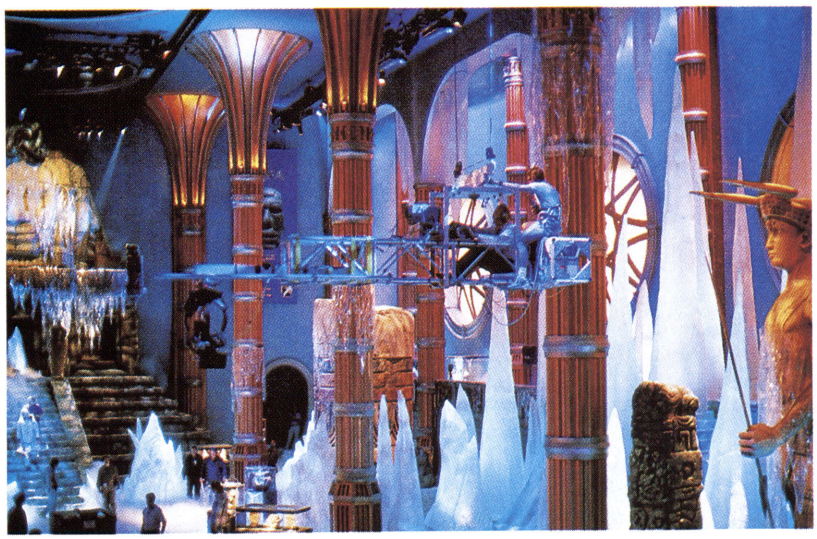
"Because there are so many people on a picture like this, the communications process can be very fractured," Schumacher con-

tinues. "In order to create a sequence, Barbara has to go off and design an extraordinarily complicated set; Stephen has to figure out an extraordinarily complicated way to light that set; John Dykstra has to figure out where his special effects fit into the scheme; the costumes have to be designed to work in the frame; and so on. There are also storyboard artists, modelmakers, and the second unit. You can literally say to someone, 'I want a bowl of apples in this scene,' and two months later you may see a whole wall of *Snapple* bottles. So you say, 'What is this?' And they reply, 'They told us you wanted a whole wall of Snapple.' 'No, I wanted a bowl of red apples!' But meanwhile, the shelves have been built with the Snapple, and you might just have to accept it and work with it."

To minimize snafus of this sort, Goldblatt says that he engaged in detailed preproduction planning sessions with Ling and Dykstra. "I was involved in the actual construction of all of the sets, which was a tremendous advantage," the cameraman says. "Barbara's work was great, because she always gave us glazed surfaces to catch ambient reflections. She also showed me everything so I could do tests.

"I was also assisted quite a bit by John and [visual effects cosupervisor] Andrew Adamson. One of our most elaborate sets on this film was the Gotham Observatory, a full-size space built in Long Beach. Prior to the actual shooting, John and Andrew created a 3-D computerized model of the set [see illustration p.40], which allowed me to previsualize where the camera could go. I could work out the look, then decide how high or low the camera would have to be. On that basis, we made certain sections of the observatory wall removable, so we could take them out and put them back in again. It really worked, and it allowed us to get all of the camera angles we needed.

"Because of that type of planning, we actually found ourselves 10 days ahead on principal photography at one point. Of course, those 10 days were probably just dumped onto the second



Top: ***Earl Wiggins sits high above Gotham Museum in the special rig he designed for the set. Hung from two overhead tracks built into the ceiling, the camera chair could traverse the entire set very rapidly, spin in a 30'-diameter circle, and move up or down to any height.*** **Bottom:** ***Mr. Freeze (Arnold Schwarzenegger) surveys his handiwork after refrigerating the museum. Special computerized lighting fixtures were used to illuminate the various exhibits and icicles.***

unit [headed up by director Peter McDonald and cinematographer Jamie Anderson], but overall, the first unit did very well. The entire first-unit schedule was about 90 days."

Goldblatt shot *Batman and Robin* with Panavision cameras (using a Platinum as his workhorse), generally without any filtration. To fully exploit the height of the picture's enormous sets, the filmmakers shot in the standard 1.85:1 format rather than wide-screen, but wide lenses helped to achieve optimum edge-to-edge framing. "We often found ourselves working at around 24mm, but we'd often go to 17mm," the cinematographer says. "In the Gotham Museum set, we found that the 10mm lens was a bit too wide, so we went to a 14mm. I used the Primo 4:1 and 11:1 zooms quite a bit, but if we were doing a locked-off shot, I preferred to change over to the straight Primo primes — the 17mm or 14mm — because the image quality of those lenses was simply better than the wide end of the zooms."

This lens selection helped Goldblatt compose the type of framing favored by Schumacher. The director notes, "I like large spaces with the actors in the middle of the space, so they're almost in limbo — as opposed to them being against walls. Even in 'realistic' movies, I try to have large enough spaces so that I can put people in the middle of them. I don't like people standing up against things. In action scenes, I like to start in the middle of the room and move upwards and outwards from it.

"We rehearsed those types of moves very carefully on this picture. Because one of our villains was Mr. Freeze, we were able to [base certain action scenes on] extreme winter sports — ice skating, ice hockey, and so on. We have ice vehicles, freezing rays, you name it. I tried to create stunts that don't belong in any movie but a *Batman* movie. We kept the things that were the most spectacular, funniest or cleverest, and took out the things that resembled traditional martial arts or normal fights."

Goldblatt adds, "We made good use of the Steadicam, which was operated by Mark van Loon. He was the second camera operator on the first unit, so he could always jump into his harness

Warner Digital Creates Glacial Gales

Overseen by visual effects supervisor John Dykstra, ASC, *Batman and Robin* features more than 400 effects shots that were divvied up between Pacific Data Images (PDI) in Palo Alto, Warner Digital (WD) in Burbank, Cinesite in Hollywood, and Buf in Paris, France. Some of PDI's extraordinary shots include a computer-generated Robin astride a CG version of his motorcycle, the Red Bird. Buf, best known for its work on the Gallic sci-fi film *The City of Lost Children*, was responsible for, among other shots, a big "freeze ray" emanating from Mr. Freeze's observatory lair.

A team of 54 artists at WD relied on Alias/Wavefront and Renderman software in handling just over 100 shots: a rooftop chase sequence involving numerous computer-generated vehicles (the Batmobile and the Freezemobile among them); some tricky CG extensions to complex Gotham City miniatures; and two versions of Mr. Freeze's freeze-gun: a handgun and a larger weapon that the villain fires from his truck.

But the most intriguing of WD's tasks was "freezing" those unfortunate citizens of Gotham City who have been zapped by the icy beams of Mr. Freeze's weaponry. Asking an actor to hold a position for the duration of these shots was out simply of the question. "With a moving camera, we shot a test scene of how to get a woman to freeze," explains WD visual effects supervisor Wendy Rogers. "But nobody can really hold a frozen pose that perfectly. They'll move slightly from frame to frame. Very small motions will be registered by the camera."

One seemingly obvious solution would be to take a single still frame of the actor, cut it out from the start of the sequence, and then paste it back into the actor's position in the subsequent frames. But the camera was not going to be locked off in any of the 12 "frozen" actor shots, and a moving image impedes any subsequent pasting of a 2-D image. "You need the perspective to change on that person, so you can't just take one still frame," explains Rogers. "The only way we found to achieve the ability to move the camera around the person was to re-create a [digital] model of that person."

Creating a 3-D CG model that would maintain its correct relationship with the scene's moving camera was a challenge that required a creative solution. The WD team combined stereo imaging and photogrammetry, a mathematical formula for taking multiple images and using triangulation to reconstruct geometry in a given space.

Stereo imaging and photogrammetry may not be a commonplace method in the visual effects community, but it is not a novel practice. Most research on the subject stems from architectural and geographical studies. According to Rogers, several papers on these techniques have, in fact, been presented at Siggraph. WD also investigated the analyses of a UC Berkeley doctoral student who, working from still photographs, used the formulas to re-create the geometry of buildings. "It's much easier when you're dealing with an object that's not moving, because you can move around and take images from all angles," observes Rogers. "When you're trying to use the techniques to capture action from a character who'll be moving, it's more logistically complex. You need multiple cameras, and they have to be synced."

WD filmed the soon-to-be-frozen actors from numerous angles using anywhere from two to four cameras (depending on the scene), all of which were synced-up to the taking camera. "With the images from multiple angles, we are able to piece together a complete image and build a CG model from all of that information," says Rogers. "We're able to solve [the problem of] where in space a

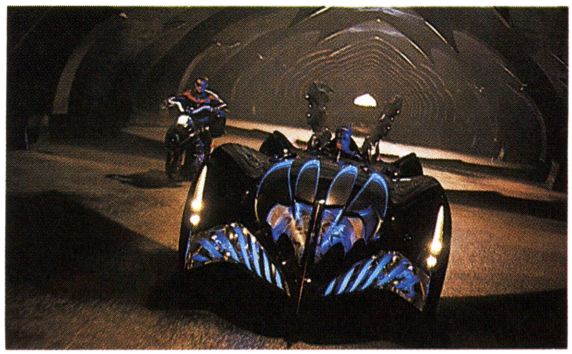
quickly and do it."

Indeed, the action in *Batman and Robin* takes place in a series of gigantic and baroque settings. In addition to performing another architectural overhaul on the Batcave, Barbara Ling oversaw the construction of an observatory, a museum, a scientific lab in the Amazon, and a hideout for Freeze and Ivy, among other sets. Following is a detailed rundown of Stephen Goldblatt's lighting approach to each area, as well as his use of other special techniques.

"We're going to need a bigger cave."
— Alfred the Butler

With the arrival of Batgirl, the Batcave became a tad more cramped, but Goldblatt found Ling's redesign of the space to be particularly well-suited to his lighting plans. "One big improvement in the design of the Batcave was that this time Barbara built a lot of the color into the set itself," the cinematographer says. "Previously, I had put in a lot of the bluish color with the lighting. This time, Barbara's crew painted color into the rock faces and other surfaces. Also, the perspective was worked out so we could get the camera wider and lower and not go off the set. So in some ways, the set was bigger.

"The big change was in the platform that brought the Batmobile up," he says. "That was designed as two great big Bat-signal wings, with the new Batmobile — a convertible — sitting in the middle, like an insect. To get that to work, I placed Xenons below the grating beneath the car. I then had a company from North Hollywood, Nights of Neon, augment the look by adding white neon just beneath the symbol so that the glow of the neon would make the symbol stand out. As the Batmobile takes off, a pod rises up and opens to reveal Robin's motorcycle. I had some red neon put into Robin's



The new convertible Batmobile is trailed by Robin's motorcycle, the Red Bird.

person's nose is from all the views we have of that nose."

WD programmer Joel Merritt wrote the software used to construct the models from the multiple images. The software allowed the artist to identify features from the multiple camera views, align those features, and then fashion 3-D geometry from the aligned imagery. "It was a great technique for creating a frozen model of a person that looked exactly like the person at that particular instant of time," Rogers attests.

The artist next mapped the 3-D model with an actual photograph of the actor, also created from the same multiple images used to devise the model. Next in line for creation were the all-important ice elements. Rogers notes that the true challenge was in trying to develop a frigid, glacial substance as opposed to one which simply appeared glassy. Ice effects involved a combination of elements: the freeze-ray; the ice surge that overtakes the models of those victimized by the frigid firearm; various varieties of icicles; and the chilled vapor seeping from its surface.

The freeze ray dynamics were created with Dynamation and rendered in Alias. The ice models were all ray-traced. The growth of the ice combined interpolation between hand-built key and displacement mapping/hand animation; the end result achieved shapes that make it look as if ice is sprouting from the freeze beam's impact point to envelop the "frozen" actor. The power of the blast causes ice to cover the person's surface before forcing icicles back around the contours of the model.

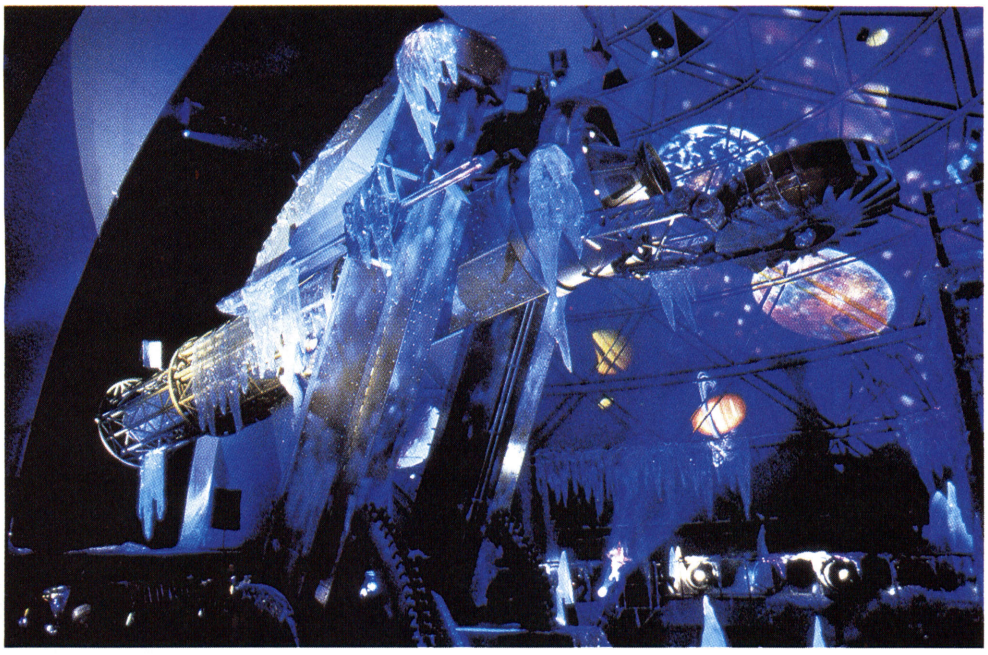
Vapor, a hard-to-control element, was particularly difficult to re-create digitally. Again, a moving camera's changes in perspective would preclude believably matching a practical vapor element with the 3-D CG model. But WD relied on practical experiments to determine the best means of re-creating vapor in the computer. "We did lots of tests on the set where we sprayed CO_2 at practical models of frozen characters and watched the dynamics of that," Rogers says. "We rendered the particles to look similar to what we saw — the billowing as it was emitted, and its wispiness. The vapor needed to surround the volume, and look as if it was interacting with the model."

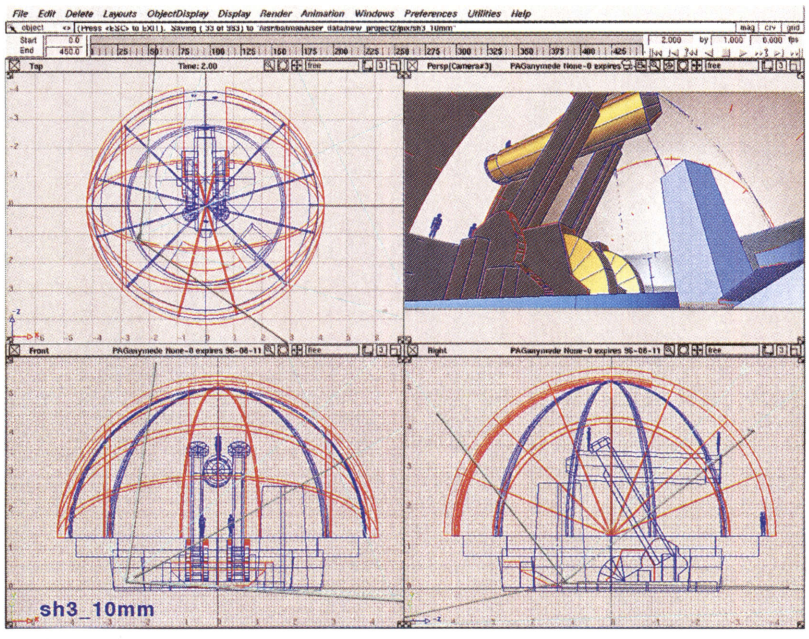
Once WD learned the ropes of the stereo imaging and photogrammetry techniques, they found the formulas to have additional functions. "We used the technique enormously for modeling props in the same scenes [containing frozen actors]," says Rogers. "Because of the stereo cameras, we had all of the information needed to create props without doing lots of measurements on set, although the measurements we did take on set needed to be highly precise and accurate."

For the CG extensions of the 1/24th scale miniatures of Gotham City, WD used these same techniques to position the CG buildings dead-on with the mini-metropolis. Although these shots were accomplished with motion-control moves, Rogers points out that the CG image needed exact placement to prevent any "wobbling at the seams." She adds, "In a complex scene in which there's a lot of interaction between the CG and live action, these techniques would give you a fairly good way of re-creating the setpiece in the CG world, and creating realistic 3-D models which can be viewed from any angle.

"The trend has been to integrate CG more and more with live action. Part of doing that successfully is being able to derive as much information from an image as you can," she concludes. "This technique *is* being used in other situations, but we developed it more for this project than it had been for other circumstances. It was certainly groundbreaking for us, and I expect that it will be used more in the future."

— Debra Kaufman





Goldblatt says that the Gotham Observatory set, with its array of complex computerized lighting units, was the most logistically difficult aspect of the project. Visual effects supervisors John Dykstra, ASC and Andrew Adamson helped the cinematographer plan his approach to the set by creating 3-D computerized representations of it for various situations. The scheme shown here provides the angle of view from a 10mm lens placed at floor level (the approximate perspective of the photo above).

symbol to reflect onto his bike. This was all shot from above, and it looked wonderful."

To further illuminate the vehicles, Goldblatt and John Tedesco also deployed a series of Italian-made NAT (New Automated Technology) lighting units, which were used heavily throughout the production. Goldblatt details, "The NATs are really fabulous. They're very powerful, and have a very narrow beam. They also have periscope heads, so you can actually move 360 degrees in either direction. They're wonderfully controllable, and you can use all sorts of strange color combinations with them — RGB mixes, scrolls, and so on. We had a large rig up above the set to facilitate top-lighting, and I was able to replace some of my 10Ks with NATs. If I were to do it again tomorrow, I would replace even more of the 10Ks with NATs."

The look of the cave was further refined with the use of Universal Projectors — small but powerful units designed by Tedesco's company — to provide a unique "water-ripple" effect along the Batcave's walls. Tedesco explains, "We changed the heads on these projectors, and showed Stephen a way of simulating a different kind of ripple effect than has been traditionally done over the past several years. In the last few *Batman* films, that effect was generally done with Xenons bouncing off shards of mirrored glass in the water. Stephen did employ that technique extensively once again, but we also used the Universals to give him a real out-of-focus ripple effect, kind of a 'diving through the kelp beds' thing. It was a very reliable, old-fashioned type of moving effect like you'd see at an opera, but it worked really well."

For the scene in which Barbara Gordon discovers the Batcave, Goldblatt added a special *coup de grace*. "I used some very high-powered blue and red lasers to simulate the look of an elaborate security system," he says. "She's in the middle of the car's turntable, and she's surrounded by a lattice-work of lasers. It looks great."

Star-Gazing at the Gotham Observatory

According to Goldblatt, the film's most difficult set was the Gotham Observatory. Built to full scale on a stage adjacent to the Long Beach, California, docking area of the *Queen Mary*, the observatory featured a 20-ton, fully movable, copper-colored hydraulic telescope as its centerpiece. (A smaller version of part of the observatory was also constructed to facilitate other shots, using the same types of lighting units employed on the full-scale set.) In the film, the setting is first revealed during a swanky dedication party. Soon after, however, Mr. Freeze invades the space, turning it into a large geodesic refrigerator and converting the telescope into a giant "freeze gun" which he trains on Gotham City.

During *AC*'s visit to this set while *Batman and Robin* was in production, Goldblatt conducted a thorough tour of the space, offering a rundown of its most interesting features. The set's entire interior had been dressed with standing shards of plastic "ice," as well as rows of icicles hanging off the tele-

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scope. Next to the telescope, frozen in place, stood two of Mr. Freeze's hapless "victims" — a pair of life-like dummies encased in sheets of ice, specially constructed by effects experts from Alterian Studios in Monrovia, California. Beyond the front end of the telescope, an open section of the dome revealed a huge TransLight painting of Gotham City at night.

As humorous and impressive as the set was at first glance, the scene truly came to life during actual takes, as Goldblatt and Tedesco fired up a swirling, psychedelic barrage of colorful "cosmic projections" — planets, comets, and the like, all designed by Barbara Ling — along the dome's inner walls. The cinematographer relates, "I was very interested in using projectors on this film, particularly on the observatory set. During prep, I went to New York to research those types of units with the help of a company called Electronic Arts. I brought a number of projectors back to L.A. for more testing, and we eventually became interested in using these French projectors known as Telescan Mark 4 Chameleons. They're very much like lighting fixtures; the projector beam isn't direct, it's aimed at a mirror. The mirror can send the beam anywhere, and you can distort the image or change the scrolling speed and color — all from a lighting board. In that sense, the Chameleons are like hybrids of a computerized light and a projector. Barbara Ling was able to build about 40 of them into the dome."

To supplement the look provided by the Chameleons, Goldblatt and Tedesco positioned a quartet of larger, more conventional PIGI projectors (which use HMI arcs) on a scene-by-scene basis to cast general planetary patterns and magenta backgrounds on the inner surface of the dome. "At first, I was unable to get an exposure above T1.4 when the images were projected onto the observatory's gray walls," Goldblatt says, "so for this part of the sequence, we repainted the interior to the type of white used on a drive-in theater screen. This got the exposure up to an acceptable level of about T2.8, but it created another problem: the ambient lighting in the observatory and the clear parts of the projected artwork washed out the general effect, making the look too pretty and pastel rather than dramatic. Much head-scratching led me back to the original 18 percent gray surface; I also tweaked the lamps, went four points lighter on the printing lights, and used slightly lighter PIGI artwork and a selection of the more luminous artwork on the Chameleons. I finally got to T2.3 after three weeks of struggle and sleepless nights.

"Nevertheless, we still had problems with ambient bounce washing out the image. Peter MacGregor-Scott is a former sailor, and he suggested that we rig 'negative fill,' i.e. black material, in sailing-ship fashion along the sides of the observatory. It could be pulled up and down very quickly to counteract the bounce-back."

Rounding out the dome's lighting scheme were a ring of 12 NAT lights installed in the ceiling; some standard fixtures along the floor; blue-gelled 2Ks to illuminate the various ice shards from within; Kino Flos hidden beneath the telescope's platform; and neon "zapping" effects installed into the scope's barrel by Nights of Neon. The film's actors were illuminated as much as possible with conventional lighting units, because the theatrical lights tended to produce unpleasant and unexpected color casts on flesh tones.

To cover the huge space, a Technocrane was mounted atop a Titan crane, and aerial rigging wizard Earl Wiggins (who had aided Goldblatt on *Batman Forever*), built a special truss rig — a 24' revolving arm with a camera seat at one end and a counterbalance at the other — high up in the dome. "We put the Technocrane on the Titan quite often," says Goldblatt, "because that gave us a 50- or 60-foot reach for these great sweeping moves on the big sets."

Goldblatt eventually found it possible to shoot the set at his preferred exposure of T2.3 while using the 5279 stock, retaining deep blacks (using printer-light settings of 37-41-43 at Technicolor Los Angeles), but he says that his

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A blacklight sequence involving a spooky Gotham City street gang revealed an interesting difference between Eastman Kodak's older 5298 film stock and its new Vision 500T 5279 emulsion. "The 79 is more sensitive to UV lighting," Goldblatt says. "I took the same approach to the blacklight scenes on this film as I had on Batman Forever, *but I found it easier to get the full effect with the 79, and I'm happier with the results. I even found it was possible to overexpose with the 79 — something I could never do with the 98. However, this might also explain why 79 is not as good a stock for blue- or greenscreen work as 98. We occasionally could use 98 for those types of situations on the last film, but we could not use 79 that way. It may be that its UV sensitivity causes it to bloom."*

hair turned even grayer in the process. "Just getting an exposure really drove me crazy sometimes," he admits. "At one point, I was just in despair. The lights we were using weren't really designed to be used on films, but for theater work. Thankfully, the footage turned out wonderfully well."

Icing Up Gotham Museum

Equally light-intensive was the film's Gotham Museum set, which stretched more than 200' from end to end on Warner Bros.' enormous Stage 16 (see fold-out lighting chart). With its vaulted ceiling, cathedral-style windows and various "artifact" displays, the structure presented Goldblatt and Tedesco with another brain-twister.

Once again, the space had to be lit to simulate the icy conditions that exist after Mr. Freeze blows through. "We used more computerized lighting on this set than anywhere else in the film," says Goldblatt. "The very nature of the set — it's a big museum, after all — allowed us to keep some of our fixtures right in the frame sometimes, as 'track lights' and things like that. Even though some of our lights were enormous, they looked like museum spotlights, so we could get away with it easily. The set had been built wall to wall, so we couldn't possibly have lit it conventionally."

Tedesco offers a rundown of the team's lighting arsenal: "Every single sculpture and display had to have a light on it, but our trim height was 55 to 60', and that's a long ways away. We had to use some pretty high-powered stuff to pattern the floor and illuminate the sculptures and tapestries. We used conventional framing projectors like Source Fours and Shakespeares — things that are now state-of-the-art for theatrical lighting — to frame areas and cut them off. We also used some very high-intensity, low-voltage pin spots to shine light down on the showcases. We then overlaid that with about 40 NATs that were hung in our overhead grid. Those units lit the ice shards from overhead and created various looks in different parts of the room. Some of the shards were almost 20' tall, so we also put a whole series of program lights and fiber-optic lasers underneath them; the stage floor had been built up to accommodate extra lights from below. The lasers gave us a shimmering effect, and we also used lots of studio color moving lights on them so we could change the color from blue to magenta.

"The floor of the museum was supposed to be covered with ice, so we also shot high-intensity searchlights into some revolving special effects drums, which gave us a cold, bluish-white ripply effect that animated the ice. We laid that effect over our saturated colors, topping it off with some lasers."

More conventional lights equipped with color scrollers were positioned outside the museum's windows to create slowly changing colors. Goldblatt notes, "The distances on that set were pretty forbidding, but we were shooting between T2.8 and T4 in that environment. The great thing was that the various looks we created were memorized by the computer and backed up, so the second unit could just call them up and play around with them as the situation required. I also was very concerned to build in redundancy, so we had more lights in there than we needed; if something broke down, we had spares readily available. It's a bit difficult to get up to those lamps — we'd have had to bring in Condors during the shooting day, which would have delayed everything."

In fact, several interesting things were happening high up in the set's rafters. Motorized mirror rigs assembled by rigging grip Tommy Doherty (under the supervision of key grip Charlie Saldana) swept beams of Xenon light through circular skylights and onto the museum floor. Goldblatt also explains that he and Tedesco equipped Schwarzenegger's Mr. Freeze costume with an autopilot system that allowed them to program five or six of the NAT lights to track his movements around the museum. "We put a transceiver on his costume, and then the lights would follow him," Goldblatt says. "It worked with other characters as well — for example, if we wanted to have backlight on a character who was zipping around on roller skates. Instead of having a follow-focus operator trying to track the actors, the lights are simply locked onto them. We weren't in a situation where we could use this technique as much as I would have liked, but we did use it quite a lot."

Tedesco elaborates, "We also used the autopilot system in the observatory and botanical garden sets. The second unit found it helpful when they were shooting scenes involving guys with ice hockey sticks and pucks. We'd put the transceiver on the bottom of a stick, and the lights would follow that thing right across the ice floor. We could also use this system for positioning lights and directing them at a certain area for an

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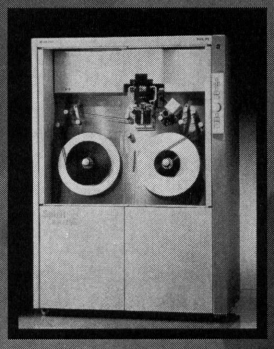

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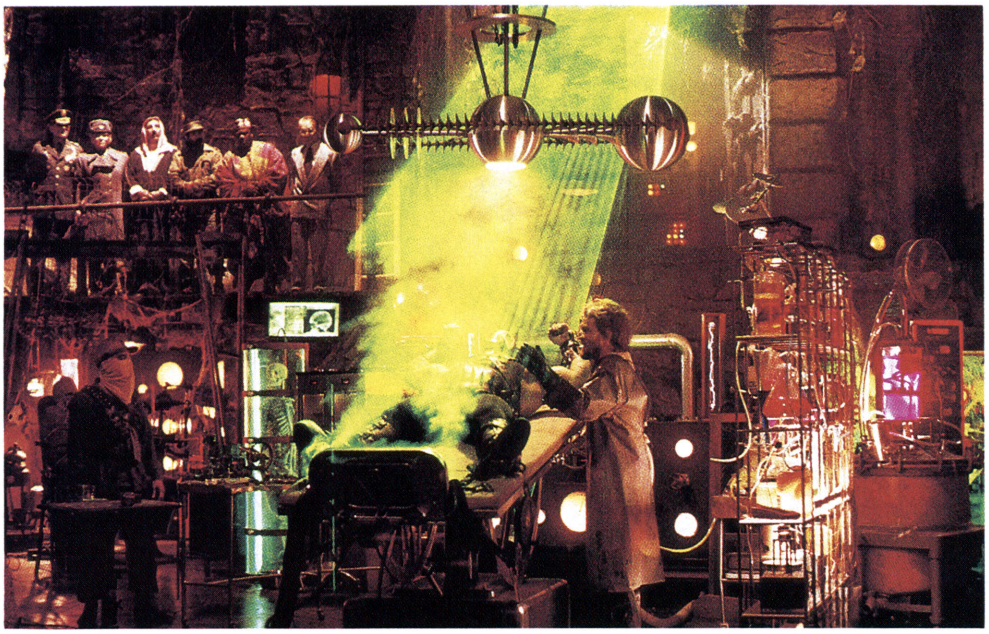

Above: ***A mad scientist (John Glover) puts the finishing touches on his Frankenstein-like creation in the Amazon jungle. To create the serrated green sheet of light in this shot, Goldblatt bounced a powerful YAG Laser off of an overhead mirror.*** **Right:** ***Poison Ivy (Uma Thurman) strikes a sultry pose on her orchid-like throne. Magenta-hued Cyberlights added warmth to the vampish villain's perch.***

upcoming scene. It cut down on the programming time and made the lives of the grips and gaffers much easier. It often meant the difference between four hours of relighting and 20 minutes of relighting."

A good deal of complex action occurs in the museum, and Goldblatt had to find a way to capture it all effectively with the camera. He once again tapped the expertise of Earl Wiggins, who built a special tracking rig along the length of the set's ceiling (see photo on page 37). "Earl put two tracks along the ceiling, and then helped us to hang a camera crane," Goldblatt explains. "It enabled us to traverse the whole set very rapidly, spin the camera in a 30' diameter circle, and go up or down to any height. We could really put the camera anywhere."

Wiggins details the reasoning behind the rig: "There were two good justifications for being in the air. One was to be able to float above the actors' heads, and the other was because there was a lot of thick artificial fog on the floor, and a traditional dolly shot would have disturbed the fog. Steve brought me in during the construction phase, and I installed two overhead I-beam track systems. Both of them were 200' long, and they were equipped with aluminum carriers, which we call skates, that have 62 rollerblade wheels on them. Suspended off of that was an aluminum boom arm that was about 24' in length. The balance point was actually off the center; there was 18' of arm on one side, and only six feet at the other end, so we had to heavily weight the smaller end. In total it weighed about 1,200 pounds, including camera, batteries, and a two-man crew — one to control the spin and a cameraman to ride the unit and control the camera. That rig enabled us to really fly down through the set; the arm could spin 360 degrees, and we could raise and lower the whole thing from the floor to the ceiling."

The rig helped the filmmakers to capture an attention-grabbing introductory shot of Mr. Freeze, but Goldblatt still had to use his cinematic wits to conquer a slight logistical difficulty. "We wanted to show the whole museum and then rush in to Freeze's face — from as wide as possible to a close-up," the cinematographer says. "Earl's rig was beautifully built, but we still couldn't come to a dead stop, so we shot the whole thing in reverse. We started on Arnold's face and moved back, and had him walk backwards up the museum's steps during the camera move. All of the stunt people in the scene ran backwards as well."

Deep in the Amazon

Not every set in the film was coated with ice. Prior to her transformation into Poison Ivy, Uma Thurman's character works as an assistant to a mad scientist (John Glover) in a tented lab deep in the Amazonian jungle. "The lab set was more conventionally lit," says Goldblatt. "We used green-gelled 20Ks and a mixture of various Kino Flo tubes hidden everywhere. We also had other green-gelled fixtures set up outside the tent. It was pretty underexposed, but I'd get up to and over key when the lightning effects came on. We used Lightning Strikes units through heavy green gels. We also used a lot of Steadicam on that set, moving through all of these tiny little corridors between various exhibits."

One of those corridors leads to a stony temple known as "Gilgamesh," where the scientist is conducting Frankenstein-like experiments in his attempt to transform a scrawny little man into the

ultimate fighting machine. This setpiece served as a showcase for a powerful device known as a YAG Laser, which was beamed down onto the hapless guinea pig as he lay strapped to a large rectangular platform.

"We used Tesla coils and everything else you normally see in a mad scientist's lab," notes Goldblatt with a chuckle. "But the YAG Laser was really amazing. Normally when you're using a laser, everything else has got to be turned off so it will show up. But that wasn't the case with this unit

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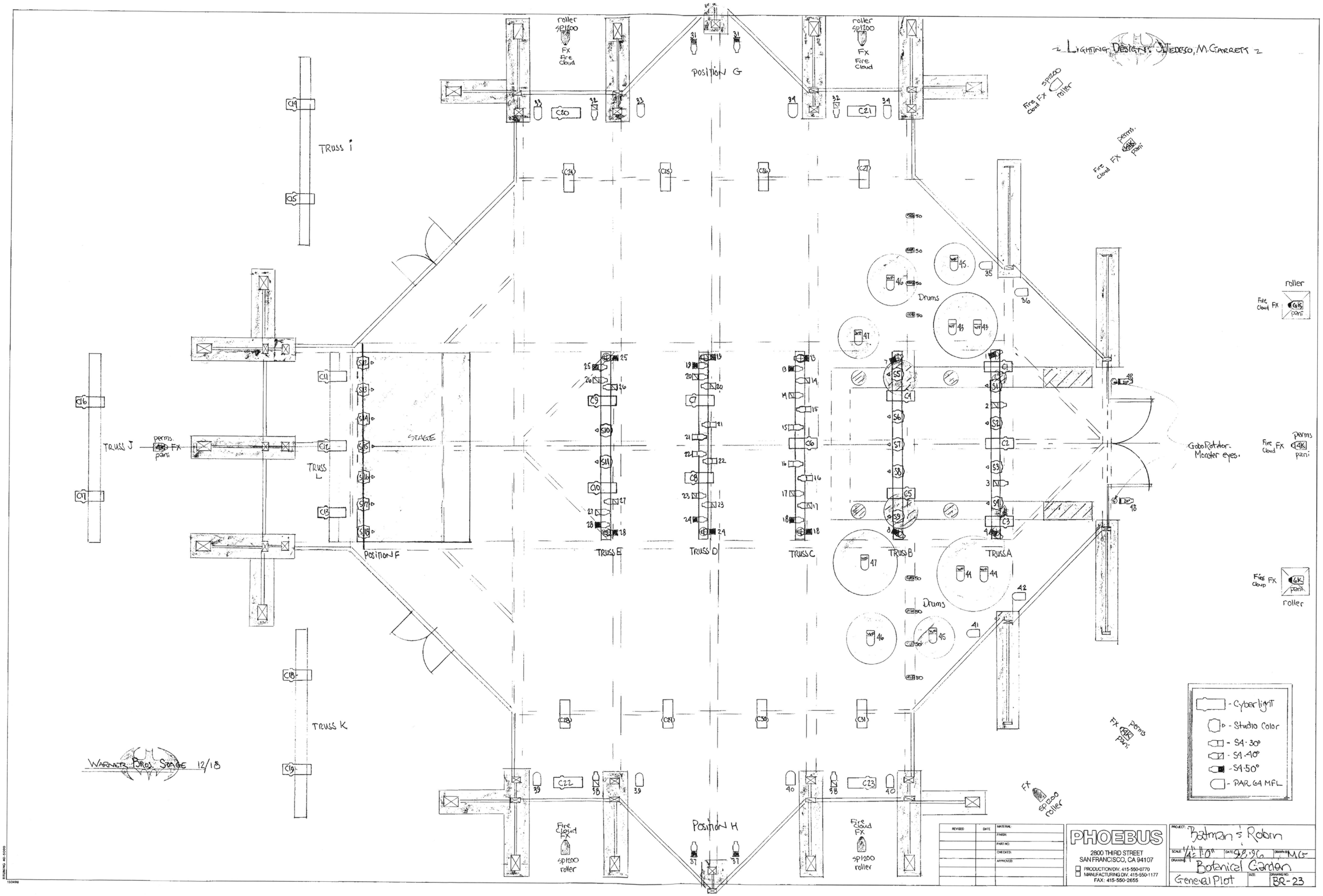
— it's very strong. The set was lit very low-key, at about a T2.5 or 2.8, but the YAG was popping out at T4 easily. The laser was fired up into a mirror and then came down over this little guy on the table in a wide, serrated green sheet.

"The rest of the set was lit in a very Gothic style, with lots of uplighting along the walls from standard 1K and 2K units," he continues. "We also hid a lot of fluorescent tubes. I even used a lighting balloon for the first time. I don't like using balloons outside, because they blow around in the wind. But on the Gilgamesh set, I needed some general fill, so we just floated a tungsten balloon up high and turned it on to create a beautiful, soft, non-directional light. The balloon was helium-filled and had two banks of quartz bulbs inside. I normally just turned on one bank. We used the same balloon for a few other scenes in the film, and we also had another HMI balloon from Lee Lighting. I found the balloons to be very useful on large interior sets, when I needed just a kiss of fill."

Hot and Cold Hideout

The disparate looks dictated by the film's villains were combined in the evil pair's shared crime lair, located within the abandoned site of a Turkish bathhouse. After invading the space and renovating it, Ivy is kind enough to sublet an area to Mr. Freeze. "Within the same set, we had these two very exotic and different areas," says Goldblatt. "I tried to give Poison Ivy's area a sexy feel, with lots of pinks and greens. We put colored patterns on the various flowers and orchids to enhance the mood. The color pattern was basically magenta, red, green and pink, with some touches of yellow and other colors.

"Ivy's area includes her 'throne room,' where she seduces Robin. There's a big pool in the middle with lily pads that Robin walks across. I took great liberties in that particular sequence, using more and more color scrollers and patterns everywhere. From up high, I was using 2K Xenons for moonlight. We also had a rock 'n' roll truss up overhead for the color



LIGHTING DESIGN: J. TEDESCO, M. GARRETT
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POSITION F
POSITION H
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TRUSS B
TRUSS C
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Drums
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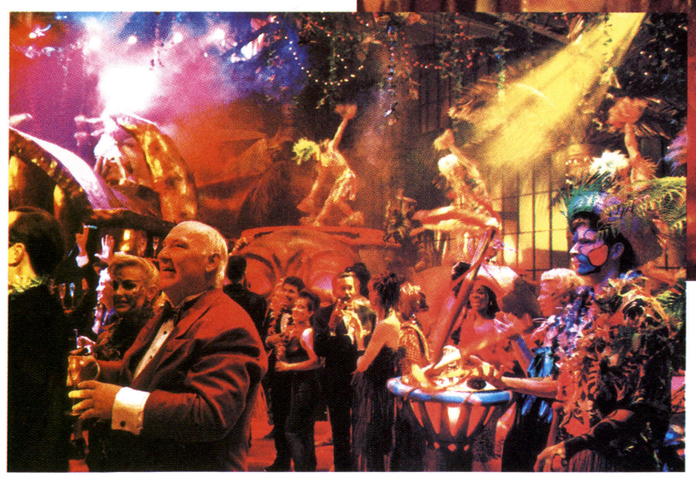
FAX: 415-550-2655
PROJECT: Batman & Robin
SCALE: 1/4" = 1'-0"
DATE: 98.96
DRAWN BY: MG
DRAWING: Botanical Garden
General Plot
SIZE:
DRAWING NO. BR-23

The Botanical Gardens, where Poison Ivy throws a garish bash, made extensive use of the production's full range of computerized lighting units. "This scene is like an insane Tarzan movie," says Goldblatt. "We have characters on trapezes swinging back and forth, and all sorts of special scroll lighting and flicker effects. We also used all of these intentionally corny flame effects from projectors. The colors were all very chromatic and bright.

"When Mr. Freeze crashes the party, of course, everything gets frozen up, including various people and the set. We changed the loops in the projectors to create ice shards coming downward at an angle."



units — magenta Cyberlights aimed at Ivy's throne, and Universal Projectors with patterns running through them. I also added some conventional units to backlight the throne. Beneath the water, we used 1K Xenons to highlight the greenery, and we hid a lot of Cyberlights in the foliage.

"In Mr. Freeze's area, we naturally went more towards a blue look with our scroller and projectors. We also used a mixture of nitrogen and oxygen to create vapors that come down from the ceiling, and then backlit them with blue light and projectors."

These individual looks were also reflected in Goldblatt's approach to the lighting of the villains themselves. "I basically used old-fashioned glamour techniques on Poison Ivy, but Uma Thurman requires different lighting than, say, Nicole Kidman [the heroine of *Batman Forever*]," he says. "Nicole, with her tiny little nose and ivory skin, could be lit with a soft sidelight, while Uma's features and complexion, although exotic and beautiful in the extreme, require a flatter angle for the light, with a more traditional shadow below the chin. The action in these films is so large that these characters have got to stand out; you don't have much time to squint for their expressions. On this film, even more than the last one, we had to get the point quickly, so perhaps the lighting is a bit less subtle on the characters.

"The elaborate suit that Mr. Freeze wears is certainly not understated," he adds with a laugh. "Arnold was initially going to have a costume that was self-lit with fiber optics. I was very dubious about whether that would work, and it turned out that it wouldn't. Three to six miles of fiber optics per costume is prohibitively expensive, and the areas where the joints occurred had to be impossibly precise. There was also the weight of the batteries and the projector that fires the light through the fiber optics. It became very impractical.

"Fortunately, these blue LEDs have been developed over the past year or so, and those were put into his costumes instead. We used hundreds of them; they were

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low-power, and fairly reliable. Those served as the main light sources on Mr. Freeze. Arnold also agreed to wear metallic contact lenses — the slightest white reflectors, which didn't change the look of the set at all and gave his eyes this incredible metallic flare. He wore illuminated dental pieces so that his teeth would glow as well. We also put some white lighting in the suit, off the same battery packs, so there would be some uplighting around his neck and into his face. I lit him in addition to that, but he often didn't need that much extra.

"Of course, Batman needs a lot of light, which makes things a bit difficult during the scenes in which Freeze and Batman fight each other. The metallic highlights on Batman's battle costume at the end of the film made it easier to light, because it wasn't dead black. All of Batman's costumes had beautiful highlights and metallic powder embedded in the rubber material."

Goldblatt used either NATs, 10Ks or 5Ks to provide two ¾ backlights on the characters, and he always used an eyelight to bring out Clooney's eyes, lest he lose his star's pupils behind Batman's cowl. "Chimera's new diffusers were just a joy to me for that purpose," he enthuses. "They're devices that you put in front of conventional hard lights, and they make the light soft while preventing it from spreading. Basically, these new Chimeras enable you to control soft light, which is what cinematographers have been dreaming about for years. I'd often have my wonderful gaffer, Les Kovacs, walk beside the camera and keep a soft Chimera eyelight on Batman. Instead of being all over the set, the light was just on his eyes, which was fabulous.

"Essentially, we used rock 'n' roll lighting on the characters for medium and wide shots, but we went to pretty traditional techniques on close-ups, because they look best."

Camp Schumacher

According to director Schumacher, *Batman and Robin* proved once again that amicable teamwork can work wonders, even on a project that defies normal logistical limits. His philosophies about on-the-set interaction are refreshingly upbeat, and seem to produce contagious optimism among his collaborators. "If you don't use the people around you on a film, you are ignoring your greatest asset," he maintains. "People always start out a movie wanting to do it well; nobody ever started out wanting to make a bad movie. But I've been on crews that have been discouraged or demoralized, and in that kind of situation you finally just say, 'The hell with it. The director doesn't care.' It's the same in every workplace in the world. Nobody wants to go to work and feel as if they're ignored and have no contribution to make. Whenever you work with people who treat you well, you work harder, because you're happy to be respected and thought of as a responsible person who can do the job.

"The first time you work with a group of people, you're sort of thrown together, and if you don't like the experience, you know you're never going to have to work with those people again," he notes. "But when you come back to work with people, it's because you really loved the experience and you've chosen to do it again."

This enthusiastic and open-minded work ethos served Schumacher well when he began reassembling his key collaborators. He illustrates the point with an appropriate anecdote: "About a week before I started to shoot *A Time to Kill*, in August of 1995, [Warner Bros. heads] Bob Daly and Terry Semel called and asked me if I'd do another *Batman* movie. It's a big, wild pop opera that you get to play with, and I'd enjoyed directing the first one, so I agreed. One of the first people I called was Barbara Ling. She had been exhausted after the experience of *Batman Forever*, and I thought she would say no to working on the new one. I said, 'Barb, are you up for another *Batman*?' And she replied, 'Oh, we haven't even scratched the surface.' That really became our motto on the show." ◆

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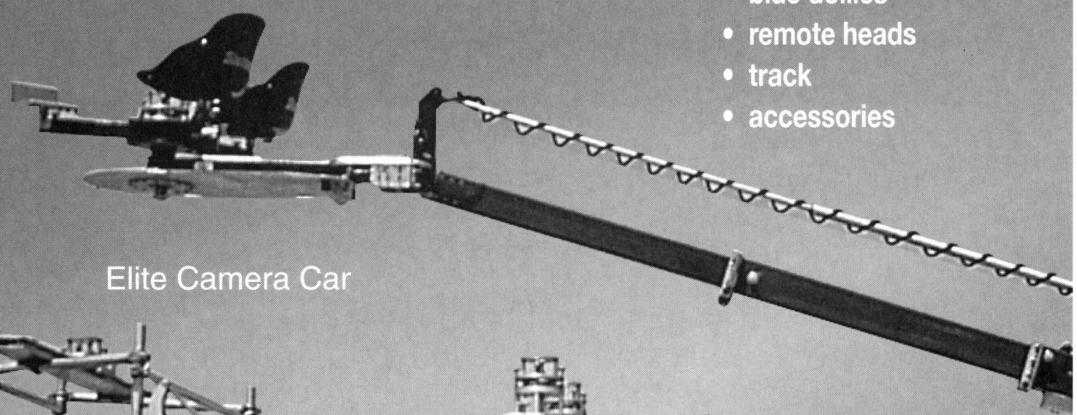

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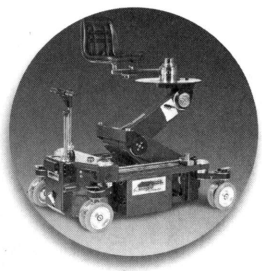

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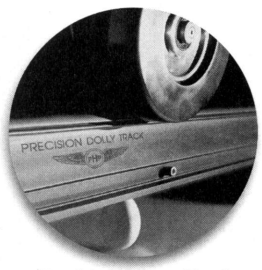

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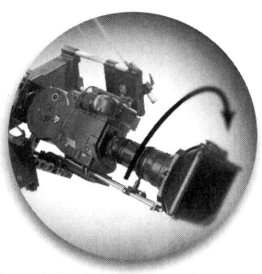

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Photos by Francois Duhamel, courtesy of Warner Bros.

Intrepid astronomer Eleanor "Ellie" Arroway (Jodie Foster) monitors the launch of an alien vessel from NASA's Cape Canaveral.

We Are Not Alone

In *Contact*, director Robert Zemeckis and cinematographer Don Burgess, ASC propose an answer to one of humanity's most profound queries.

by Andrew O. Thompson

On a brisk January afternoon in West Los Angeles, an "historic moment in human history" is being realized on Stage 16 at Culver Studios. The set replicates the bridge of an aircraft carrier, where scientists, politicians and military personnel are monitoring the aquatic launch of an extraterrestrial starship. Overseeing this undertaking are a grim-faced mission commander (Tucker Smallwood from TV's *Space: Above and Beyond)*, a surly National Security Advisor (James Woods), and a spiritual guru (Matthew McConaughey), who is serving as an advisor for this transcendental mission.

As a digital clock counts down the remaining two minutes to launch, all eyes focus on a number of snowy video screens displaying the craft's lone pilot — human astronomer Dr. Eleanor "Ellie" Arroway (Jodie Foster) — as she attempts to finesse the vibrating vessel. "Everything is all right. Do not abort! I can read you very faintly but I'm okay to go!" Ellie cries out from the cockpit. Hesitation fills the air. Suddenly, Ellie's sightless (and perhaps psychic) confidant, Kent Clark (William Fichtner), pipes up and offers a ray of hope, "I can barely hear her, but I think she's okay; she says she's ready to go!" The mission commander briefly contemplates this quandary before declaring, "Initiate launch sequence — on my mark!"

This command center is one of many intricate, earthbound facades fashioned for director Robert Zemeckis' screen adaptation of *Contact*, the best-selling novel by late astronomer/author Carl Sagan which postulates mankind's first contact with an extraterrestrial intelligence. The book's realistic yet fantastic narrative is what prompted Zemeckis to choose *Contact* as the follow-up project to the tremendously successful *Forrest Gump* (see *AC* Oct. '94), which broke worldwide box-office records and earned Academy Awards for Best Picture and Best Direction. *Gump* also garnered ASC and Academy Award nominations for director of photography Don Burgess, ASC *(The Evening Star, Forget Paris)*, who was again behind the camera on *Contact*.

Regarding this new picture, Zemeckis remarks, "It deals with the fantastic issue of whether there is intelligent life in the universe, but it works on many different levels. What I find compelling about the story is that it's about what would really happen here on Earth. It's more an examination of humanity than anything extraterrestrial, which I thought was really clever.

"But [in various drafts of the script], the essence of Carl Sagan's book always got clouded by the idea of aliens. It's *not* about big bugs, weird creatures or starships coming down here — the extraterrestrial intelligence talks to the Earth in the truly realistic language of science, and that's what makes it most credible.

"So this is not a giant special-effects extravaganza, even though it's a giant special-effects movie. What we're using for special effects is more hardware-oriented than nature-oriented, and I like to use special effects most effectively to create realism rather than alien landscapes. Although there are some [extraterrestrial environments] in *Contact*, we tried to keep the film rooted in reality as much as possible."

The aircraft carrier set, and its function in the plot, is a case study of Zemeckis' aim for a real-

istic suspension of disbelief. Situated below the bridge are two rows of scientists and technicians poised before computer monitors alight with astral schematics, thermal charts, and statistical equations. A large bay of windows before them looks out onto the horizon. Through the artistry of digital effects, the onscreen vista will be overwhelmed by a colossal alien craft contoured to resemble the atomic symbol.

But for now, the scenery beyond these slanted panes is nothing more than a massive bluescreen. Positioned in front of the azure curtain are multiple banks of flashing Maxi-Brute nine-light fixtures (operated via computerized dimmers) which radiate sporadically upon the actors. Cinematographer Burgess notes that this interactive lighting situation simulates magnetic energy fields that encircle the vessel before its launch. He explains, "The machine is spinning to generate all of this energy, and now it's at a 100 percent [energy level] and is emitting a tremendous amount of light. It's actually way out in the ocean, but it's so bright and so powerful that all of the light is being thrown back — it's actually penetrating into the ship, and having an effect on the light in the foreground. The effect of Ellie in the pod was actually shot a month ago. But since we've got [the nine-lights] computerized on dimmers, we can match the interactive lighting of what we did then with what we're doing now."

Multiple Formats, Multiple Stocks

Following in the footsteps of their work on *Forrest Gump*, Zemeckis and Burgess ran the gamut of shooting formats while making *Contact*, which will be exhibited in the anamorphic 2.35:1 aspect ratio. Primary production work was captured with 35mm Panavision Platinum cameras, but practicality also led to the use of the 65mm format, since its larger size negative greatly lessens any image degradation caused through effects work. Sync-sound shots were captured with Panavision's System 65, while a lightweight Beaumont VistaVision camera was employed for MOS and Steadicam work. Zemeckis offers, "We had a lot of effects shots in the movie, but because the VistaVision silent cameras are very cumbersome, we decided to go with 65mm — although we did go with VistaVision for some shots. You can't put blimped VistaVision cameras on remote heads [for shots requiring composite effects work]. We used the System 65 to try and maintain as much silence as possible. Also, if you are going to put a VistaVision camera on a remote head, you can't do a take that's longer than four minutes. So [our rationale for using System 65] was a combination of being able keep things silent and have 1,000' loads on the camera."

Adds Burgess, "We were using a shooting style in which the camera moves quite a bit, and one shot tells the story, so we did a lot of shooting on an arm equipped with a remote head. Most of the movie was shot on the brand-new Libra 3 remote head, which you can rotate on three axes; we were able to put the VistaVision, Platinum 35mm and System 65 cameras on it. The Libra 3 is also stabilized, so you can mount it on insert cars or a Panther dolly without a lot of shake. The Libra has really responsive control wheels, so the head is very responsive to what the operator wants.

"This the first time a 65mm camera has been used on the Libra 3. Nick Philips designed some new mounts and developed new programs for the head, which also needed a brand-new computer chip, to deal with the extra weight. We had to build special brackets on the mounts themselves so that they could carry the load."

(The System 65 camera alone weighs 60 lbs.; with a loaded 1,000' magazine and lens it comes in at 85 lbs.)

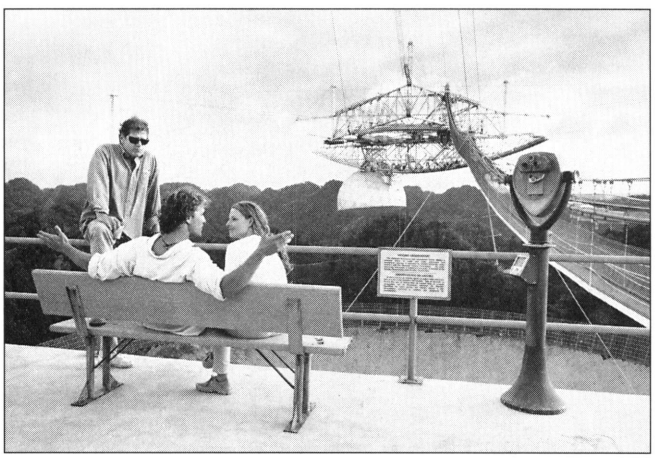
Center: ***Burgess enters one of three Vegan pod ships designed for the film. This particular pod could be pulled apart in sections to facilitate close-ups.*** **Below:** ***A massive set depicting NASA's command center at Cape Canaveral, constructed on the Warner Hollywood lot. The TransLight background measured 120' x 38' and was backlit with 132 5K Skypans to achieve the blown-out exposure necessary for its believability.***

Continues Burgess, "We actually mounted the Libra head on the end of a Technocrane when we wanted to reach over the edge of the Canyon Dulce in Arizona and shoot back at Jodie Foster. When you're moving on track with an arm that long, you always have a little bit of movement to deal with, particularly when the wind is blowing. This particular head can take some of that movement out and give you a steadier image, which is tough to do if you're carrying that much weight, especially with a 65mm camera."

Besides employing the 35mm and 65mm formats, Burgess also shot Super 8 film and video footage for specific sequences. The cinematographer explains, "We shot Super 8 for a home-movie look when the young Ellie is playing with her dad or washing the car. In researching that era [the 1970s], we found that home movies were still shot in Super 8. There's footage shot of Ellie when she's a young scientist starting out a Cal Tech, so we made Hi-8 video clips of her friends surprising her with a birthday cake at school. We've also got sequences that a news reporter would shoot, so we shot those in Betacam. And there are actually 35mm spherical lens images that will be used as video images. Because of all of the digital effects which have to be added to them, we preferred to start with a [high-resolution] camera negative and shoot film-for-video."

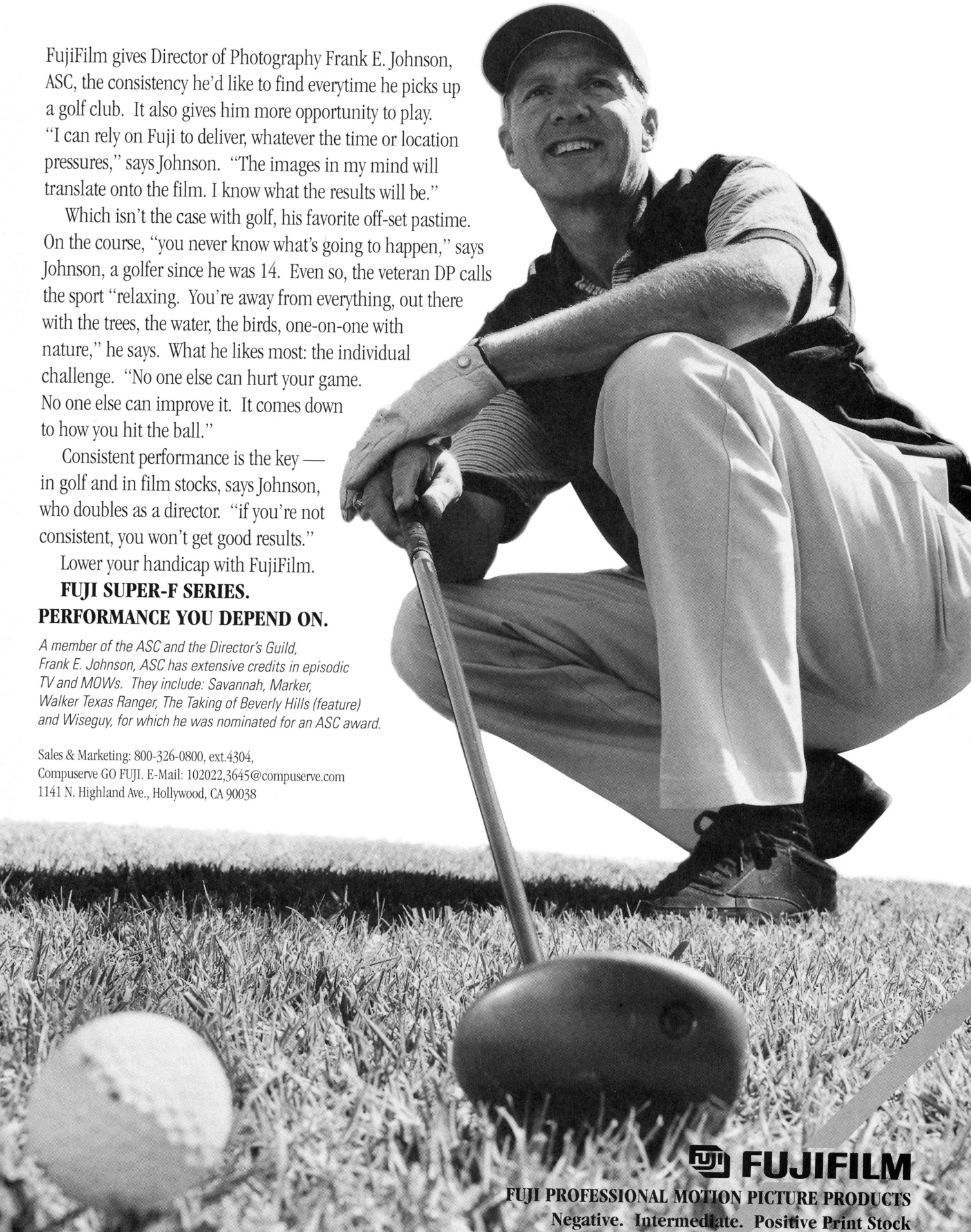
Given the immense scope of the *Contact* shoot, Burgess felt the need to create a reference guide in order to keep track of the details. He used MovieMagic scheduling software to log all of his information regarding each scene in the film, including filmstock, filters and special equipment. He also had numerous photo albums with still pictures from every setup as a visual reference for shooting inserts, and for re-creating the look of locations while in the studio. During location scouting, the cinematographer canvassed each location with a Trimble Global Positioning System (GPS), a handheld navigational instrument which can determine the site of the sun anywhere at any time by referring to satellite and solar trajectories. Offers Burgess, "I use the Trimble to log in each location. I'll take pictures and then plot the compass headings on it. Once it's logged into the memory, I've got it for the whole show. So when I'm scouting and laying out my production schedule in May, I can figure out where the sun is going to set [at a certain locale] in, say, September."

Burgess also shot Polaroids of all of the film's major charac-



Center: ***On the edge of the Arecibo dish in Puerto Rico, Zemeckis preps actors Foster and Matthew McConaughey for a shot overlooking the world's largest radio telescope.*** **Below:** ***Shooting on location at the Very Large Array (VLA) in Secorro, New Mexico. Due to the demands of stellar research, the production could only rearrange the dishes to point in a specific direction for five to 10 hours per week. Steadicam operator Mark O'Kane executed this shot with a Beaumont VistaVision camera mounted on Super Technocrane.***

With FujiFilm, Frank Johnson's only handicap is in his golf game.



FujiFilm gives Director of Photography Frank E. Johnson, ASC, the consistency he'd like to find everytime he picks up a golf club. It also gives him more opportunity to play. "I can rely on Fuji to deliver, whatever the time or location pressures," says Johnson. "The images in my mind will translate onto the film. I know what the results will be."

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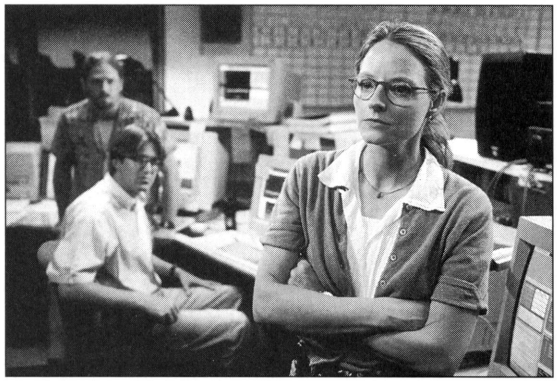
Above: Ellie makes her way from a private jet during a rain-ridden landing, effected with the help of bluescreen.
Center: ***Ellie ponders her future, and that of humanity, in the Arecibo facility's control room, which is actually a Culver Studios set.***

ters in their various outfits and facial makeups. In defining a cinematographic schematic for each character, Burgess took reflective readings from faces to balance variable skintones, and tried to predetermine which types of lenses might not be suitable for a particular actor's facial structure. To reflect Ellie's transition from carefree youth to confident professional, the cameraman applied additional diffusion as well as soft, frontal lighting that better accentuated Foster's features. He explains, "Her transformation in the movie is that she becomes more human. Because her mother and father die during her childhood, Ellie becomes a very isolated individual who relates to the universe better than she does to the people on her own planet. Through the course of the movie, she is better able to connect with people, and develops a romantic relationship, so I softened Ellie's look to make her more beautiful and appealing."

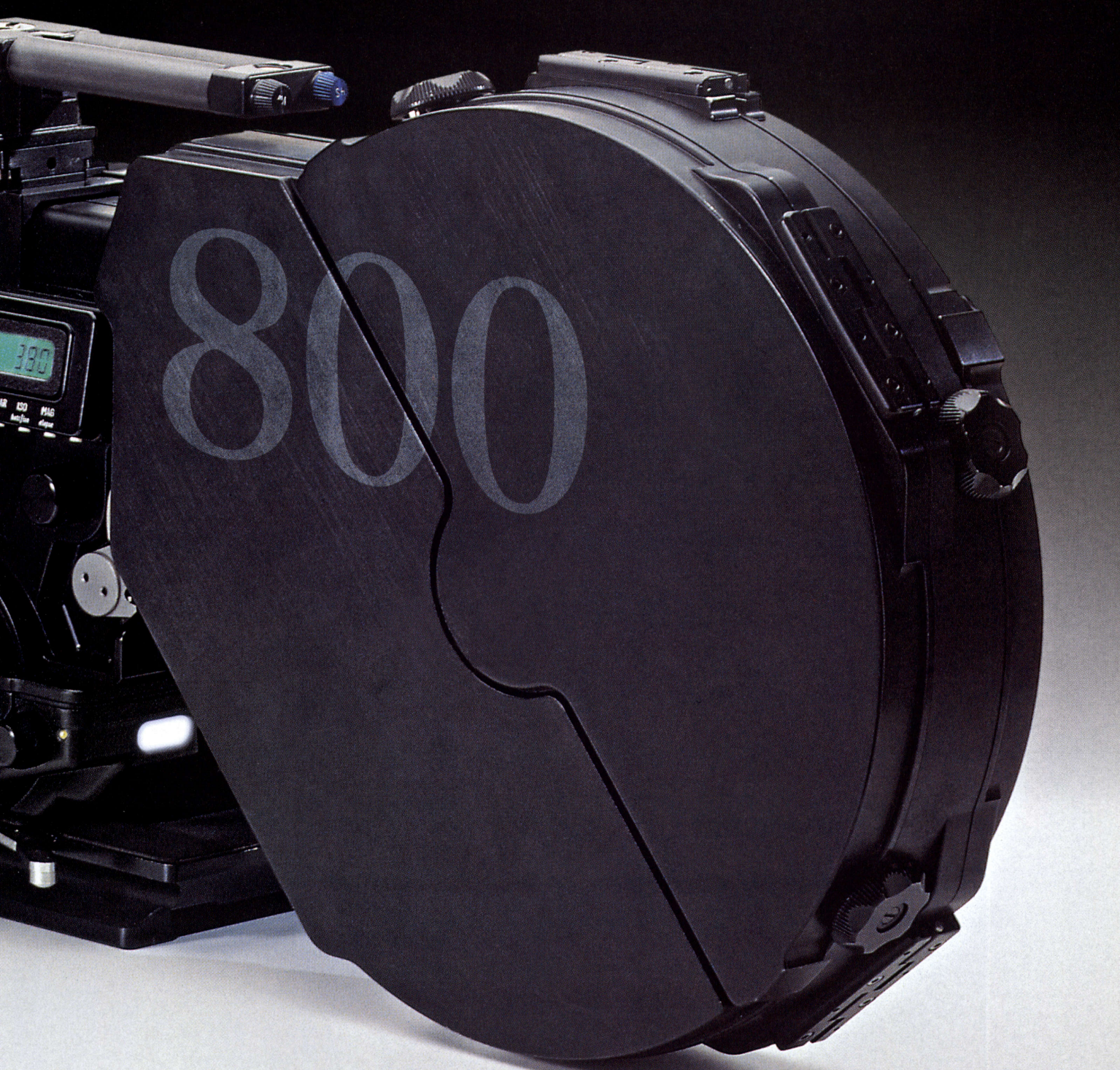
Despite the variety of film formats in the picture, the cameraman's use of lenses remained relatively constant. The majority of *Contact* was shot on a 50mm Panavision C-series lens, as well as 40 and 75mm lenses. Burgess reasons, "Wide-angle lenses are more storytelling lenses — it's a focal length that keeps the subject and the environment in focus for the most part, and it keeps your subject really connected to the environment and other actors in the scene. *Contact* is definitely told from Ellie's point of view, so all decisions about where the camera should be were structured from where she was, what she was doing, and how she saw the situation.



"We did go to longer lenses in a couple of instances in which Ellie doesn't connect with the people around her: the focus of the environment becomes softer, which isolates her more and accentuates that feeling. Working with wide-angle lenses is complicated, because you have a lot more information in the frame. It also forces you to tell the story from minimum focus to infinity."

Though Burgess employed several film stocks on *Forrest Gump* to differentiate between specific periods of American history, the assortment of emulsions utilized on *Contact* are supposed to illustrate Ellie's progression from childhood innocence to adult insight. As a general rule, the cinematographer used Eastman Kodak's 5293 for daytime interiors, Vision 320T 5277 for daytime interiors set at the White House, Vision 500T 5279 for nighttime exteriors, and 5248 for daytime exteriors, but some exceptions were brought about by variable weather, as well as concerns about contrast and depth of field. Burgess says, "Although most of the movie plays with Ellie as an adult, fundamentally she's a child at the very beginning; she goes from being a naive scientist to one who has a great picture of what the world is about. As she finds more clarity in life, we do also in the imagery. Overall, the beginning has softer images with more filtration versus, while the end of the picture, in Washington D.C., has the sharpest images."

Some of the stocks used on the film were dictated to Burgess due to their compatibility with the effects work, executed primarily in the digital realm by Sony Pictures Imageworks, under the supervision of Ken Ralston (see sidebar). Kodak's 200 ASA 5293 became the stock of choice for any scene involving bluescreen effects. Notes Burgess, "Sometimes we changed film stocks for a visual effects shot that would be cut into a production shot, and dropped the ASA down a bit [to compensate] for the manipulation that would occur later, when, in a sense, you lose that generation [of grain]. It's said that with digital transfer you don't lose anything, but I don't believe that's true, which is why I've gone to the effort to use 65mm. You always want to use as low an ASA as possible for visual effects, because as you manipulate images, the sharpness and grain structure changes. The 5248 is the most bulletproof of all the stocks when it comes to manipulation, and the 93 is next in line. 5245 is great for that as well, but the 48 and 93 cut together better, which is ultimately why I ended up going with them."



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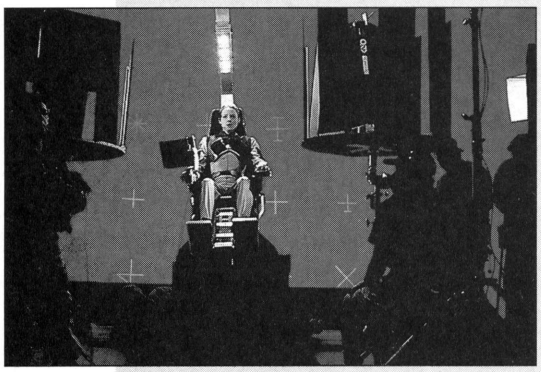
SPI Makes Digital *Contact*

Last October, when Sony Picture Imageworks assumed responsibility for the digital effects work in *Contact*, the job consisted of some 150 shots. But by the time first-unit photography wrapped this past March, the order had more than tripled to 500 shots. It's become standard practice to farm out digital effects to several different facilities, and that was exactly the course of action taken by senior visual effects supervisor and SPI president Ken Ralston (*Return of the Jedi, Cocoon, Who Framed Roger Rabbit, Death Becomes Her* and *Forrest Gump*) and visual effects supervisor Stephen Rosenbaum (*The Abyss, Terminator 2, Jurassic Park* and *Forrest Gump*). The duo forwarded 40 shots to Weta in New Zealand (the digital effects facility responsible for *The Frighteners*), about 30 shots to Industrial Light & Magic, and other shots to Mac-Guff in Paris and Warner Digital, POP, CIS and Foundation Imaging in the Los Angeles area.



Foster sits in the pod control chair surrounded by bluescreen. Various stellar phenomena will later be composited into the scene.

Not only were Ralston and Rosenbaum in charge of the approximately 300 shots that remained in-house at SPI, but they also supervised the work doled out to the auxiliary facilities. "What's amazing is that normally a project this size goes for a year and a half in post," Rosenbaum reports. "Ours was compressed to six or seven months in post, and that time frame really made it tough."

The effects shots in *Contact* married numerous live-action, practical and CG elements, so compositing became a crucial component in making each image work. "There was a lot of close interaction with [director of photography] Don Burgess. We had to consider the whole design of each sequence, and how his lighting would be affected," says Ralston. "We got some good interaction going, so [viewers could] believe that what we were doing actually affected the live-action sequence [in the story]. It's a major key for CG imagery: the more interaction you have with live-action set pieces, the more you believe it."

A substantial portion of the effects work, about 100 shots, involved generating over 2½ hours of video playback material to be displayed on monitors in the various control rooms and on TV, including a sequence in which President Clinton is interviewed.

SPI's 65-member crew used just about every technique available to create 415 film-resolution effects for *Contact*. Though most digital effects are composited with photographed background plates, Rosenbaum reports that 40 percent of the digital effects shots were fabricated entirely in computers. In fact, the film opens with a four-minute CGI cosmic zoom-out from the Earth's atmosphere to the depths of outer space.

This extended CG sequence is a precursor of things to come. Rosenbaum reports that whereas most effects shots average five to 10 seconds, those in *Contact* average between 30 to 60 seconds in length. Viewers won't even notice about 40 percent of the shots, however, because they are "invisible" effects. Says Ralston, "In one sequence, there are a couple of shots of Ellie (Jodie Foster) sitting amongst all of these radio dishes in the listening room. Then we get a big close-up of her, followed by a shot of a huge dish that she's just activated. That big dish is all CG, and putting it behind her with the right focus pulls and various subtleties and nuances — to match

Watching the Skies

Contact's 99-day shooting schedule entailed an enormous amount of location work that took the project's crew all across the North American continent. In the film's first act, Ellie is employed by Cornell University at the Arecibo radio telescope in Puerto Rico; the production shot at the actual site for two weeks in January.

A romantic, nocturnal interlude between Ellie and guru Palmer Joss (McConaughey) on an observation platform above the dish required illuminating the telescope's entire perimeter. But the Arecibo dish — the world's largest — is shaped differently than the traditional radio telescopes: in this instance, the suspended receiver points down into a giant, motionless concave dish that is built into the landscape. Thus, the actual telescope had to be lit mainly from surrounding areas, such as the parking lots carved into the sides of the adjacent mountain tops. Burgess credits the skills of gaffer Steve McGee, who rigged Dinos, 12Ks and 18Ks around, across and below the telescope for four consecutive nights prior to the shooting of the scene.

Says Burgess, "You really try to get some detail in the background, but it's difficult because everything is dark green — it's amazing how many lights I had to put in [the surrounding jungle foliage] to get an exposure [with the 5279 stock]. The dish structure itself didn't have a high reflective quality either. We actually surrounded the inside of the dish with HMI Pars and shot them up from the center out to give the dish a spoked structure and take the flatness away. We raked the edges of it, along with the greenery of the jungle, to etch out a little bit of the detail. We then lit the whole top part of the telescope from the bottom up. We put a string of 60- to 75-watt globes on the railing to create an edge that would give depth to the frame.

"The trick with night exteriors is that the light needs to come from the sides and the back to create the modeling and the shape. When you're shooting in that di-

rection with a wide lens at night, the question is where to put the lights. It's hard to get high enough off the top of the frame, and by the time you get around to the sides [of the frame], the light's too flat, so you've got to hide your units within the shot. There's no such thing as a Musco Light in Puerto Rico [the equipment necessary for this scene had to transported from Florida by barge], and even if there was, where would you park it to light the dish?"

Capitol Gains

After Ellie's grant money is revoked, she leaves for Washington D.C. in search of corporate funding for the project. This quest for capital in the capitol brings Ellie to an ultra-modern boardroom on the top floor of a skyscraper. Burgess shot this interior on 5248 to achieve stronger contrast for the cold, stark aura he sought for the corporate setting. But since the space was some 12 stories high, the cinematographer had to illuminate the room from the roof of a building across the street. He threw light into the boardroom with 18Ks, a pair of 10K Xenons and multiple 7K Xenons.

Burgess also made efficient use of the Trimble for this setup. "I had to figure out how long we could actually shoot in the direction of the windows before having to finish another way once we lost the sunlight," he says. "I used the Trimble to figure out where the sun was going to be all day, and to see how much sunlight would actually be hitting the face of the building. So in the morning, I had my reference of what the exposure of the building was in relationship to the subject. When we were shooting against windows, we had to control the outside, but still had to try to make everything balance, because we were shooting there the entire day.

"Before we shot, I got up on top of the building and looked at the horizon — there wasn't a cloud in the sky, so I knew I had sunshine until mid-afternoon. Then, of course, halfway through the day, the clouds came out of nowhere. Because we started out bright with the sun hitting the back the other radio dishes and everything else in the live-action shot — was both painful and necessary."

Just about every problem in the book ensued for a short scene that occurs half an hour into the film, in which Ellie is driving to the VLA (Very Large Array) in New Mexico. The variable elements required that digital repair be performed on the heavens above. "There's no continuity in the sequence, because the weather kept changing," says Ralston. "We didn't want freezing rain and hail, which is what we mainly had. We gave [the scene] an interesting, darkish, pre-dawn look, and we used lots of different techniques to achieve that, including some digital matte paintings. Because of the different times of day at which we shot, we also had to change the shadow contrast and the key light to create a softer, pre-dawn look."

In a second part of the same scene, Ellie gets out of her car and runs into the VLA headquarters, followed by Steadicam; the interior portion of this shot was photographed two months later in Los Angeles, so SPI had to blend the location exterior and the studio interior to make it appear as if the shot was one continuous pass. "When we shot it, we had to get her motion down at the blend moment [between the interior and exterior] so that the action was pretty much the same," explains Ralston. "We had to do some painstaking computer blending, which I call a 'blorph' — a blend/morph. We also had to augment and correct the lighting so it would look as if nothing was changing at that 'blorph' moment."

Among all of *Contact*'s very visible effects, none will be more eye-catching than the stellar craft that the film's protagonists construct based upon instructions received from the Vegan star system via radio. Based on designs by production designer Ed Verreaux, the SPI team constructed an entirely CG machine modeled with Alias software, animated with Side Effects Houdini, and lit and shaded with RenderMan. All of these elements were "glued" together with proprietary code. "There are two machines," explains Rosenbaum. "The first machine, which is blown up in the distance [during a botched launch at Cape Canaveral], is CG and composited with pyro, debris and dust. The second machine is about 1,500 feet tall, and there were some large miniatures — one that was 1/24-scale, and another at 1/36. The machine is on [a launching bay hovering above] the water, and we generated really believable water, wake, sea foam and sea spray effects using Arate software."

Comprising more than 30 layers, the almost all-CG machine scene also features a background plate with mountains shot in Newfoundland, Canada, and practical elements such as billowing smoke and cloud tank effects. The remaining elements are CG, including digital matte paintings, ships, and environmental effects.

Once the machine is made operational and sent on its maiden voyage, a surreal three-minute sequence ensues, featuring a virtual world which, according to Ralston, is "too strange to describe." While filming the craft's interior during the flight, a complex mixture of practical and digital elements — including video and practical lights from a rock 'n' roll-style rig— was projected onto actress Jodie Foster's face. Her character's eventual destination is a three-dimensional hologram of a beach, which the Vegans have created from her memories.

To capture the background that would be composited into this existential landscape, a small crew filmed 45 shots of a beach environment, in 360 degrees. SPI took those plates and tiled them together to form a virtual environment that was composited with a bluescreen shot of Ellie and a facsimile of her long-dead father, Ted (David Morse). "The interesting thing about this technique was that it allowed Bob [Zemeckis] the freedom to move anywhere he wanted in that location, because we had the entire location covered," notes Rosenbaum. "It took a tremendous amount of compositing work to get the camera moves right and get the lighting to work."

— Debra Kaufman

Outfitted in a slick spacesuit, Ellie is escorted through the halls of a Japanese aircraft carrier on her way to the Vegan pod.

walls, and then ended up with a cloudy day, I had to take down the inside exposure to balance it to the outside.

"To keep it matching, I left the building at the same exposure and brightness level. I had to drop the exposure down to match the building enough in the relationship between the face and the foreground, and the building in the background.

"It's difficult to work 12 stories up, because it's tough to light from the ground. It's always much nicer to have light coming in from the windows so that you can model things and give them an edge — especially in this case, since we wanted to create such a stark look."

Tackling the TransLights

Interiors of the film's various control rooms — the Arecibo facility, the Very Large Array (VLA) radio telescope facility in Seccoro, New Mexico, and NASA command in Cape Canaveral, Florida — were all shot on stages with windows backed by huge TransLights [transparency blow-ups of still photos] created months in advance. The TransLight for the mock-up of NASA's command center, for instance, had dimensions of 120' x 38' and was backlit with 132 5K Skypans in order for Burgess to achieve a stop of T11. "Properly exposing TransLights is a real key to making them believable," he says. "They need to be *overexposed* a couple of stops. The backings are made to withstand an enormous of amount of light, so you can keep stacking the fixtures to bring up the intensity, and make it as bright as possible. I used a white net [black netting was used for the faux NASA] in front of the TransLights to take out some detail and contrast, and to wash them out a little. You've got to give the audience enough detail so that they know what it is, but it's a fine line. If you give them too much detail and too much exposure, they'll see that it's a photograph."

There were instances when the composition of a shot necessitated trading the oversized transparencies for a bluescreen. Says Burgess, "The scariest thing about a daytime exterior TransLight is keeping it looking realistic. If we got to a point where the shot was too wide, there was too much depth of field, and we could see too much of what was actually outside, we'd roll that TransLight out and do the shot with bluescreen."

The production's most complex use of a TransLight occurs after Ellie hears an alien communiqué for the first time. In pure Zemeckis style, this sequence appears as one continuous pass, even though its various segments were filmed some four months apart. The scene starts with a dusk exterior of the excited astronomer driving to VLA headquarters, all the while chattering into a walkie-talkie to her colleagues. She parks the car in front of the building, runs inside, sprints down a hallway and executes a few turns before entering a revolving door.

At this point, the location work at the actual VLA site ends, and the shot continues on a Culver Studios set. Ellie sprints up some stairs and cruises down another hallway into the constructed VLA control room. Once inside, she places her walkie-talkie radio on an active computer monitor. The camera finally closes in on the TransLight as one of the dishes is locking into a position from which it can track the alien signal. The shot ends with the monitor's confirmation that contact has indeed been made.

While 5277 was used fo the first half of the shot, Burgess had to switch to 93 for the studio section, since the shot concludes with a digitally manipulated image of the radio dish.

The production only had five to ten hours to shoot at the VLA site per week; researchers using the facility have their dish time booked years in advance. Therefore, the first section of the shot was filmed during dawn and dusk over five consecutive days. It was done using a Beaumont VistaVision camera on a Steadicam operated by Mark O'Kane, beginning from a high angle as he stood up atop a Titan crane. As the truck pulls up, the Titan lowered and O'Kane stepped off, trailing Foster as she entered the building and ran down the hallway through spotty pools of light (created by 2K softlights) cast down from the ceiling.

For the second half of the shot, filmed on the control room set, Burgess had to contend with a TransLight which demanded less backlighting, since the transparency displayed a dawn setting. Balancing the room's ambience with the TransLight and the computer screens was also a concern. Burgess expounds, "In that type of situation, you have to expose it to balance; you can't blow it out and lose the detail that way. So you have to get the TransLight photographed at as close to the proper time of day as you possibly can. My biggest problem was that the sky in the TransLight photograph was way too blue. The challenge here was to remove enough blue from the TransLight to make it match the

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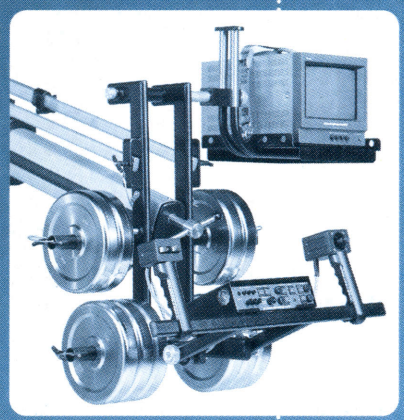

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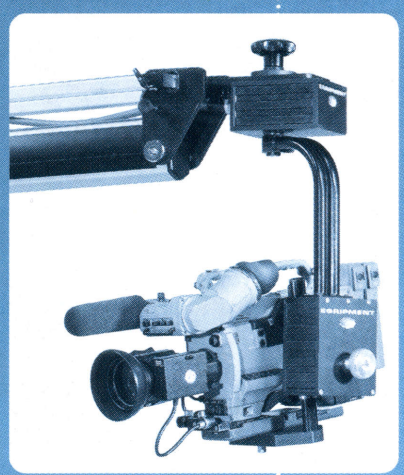

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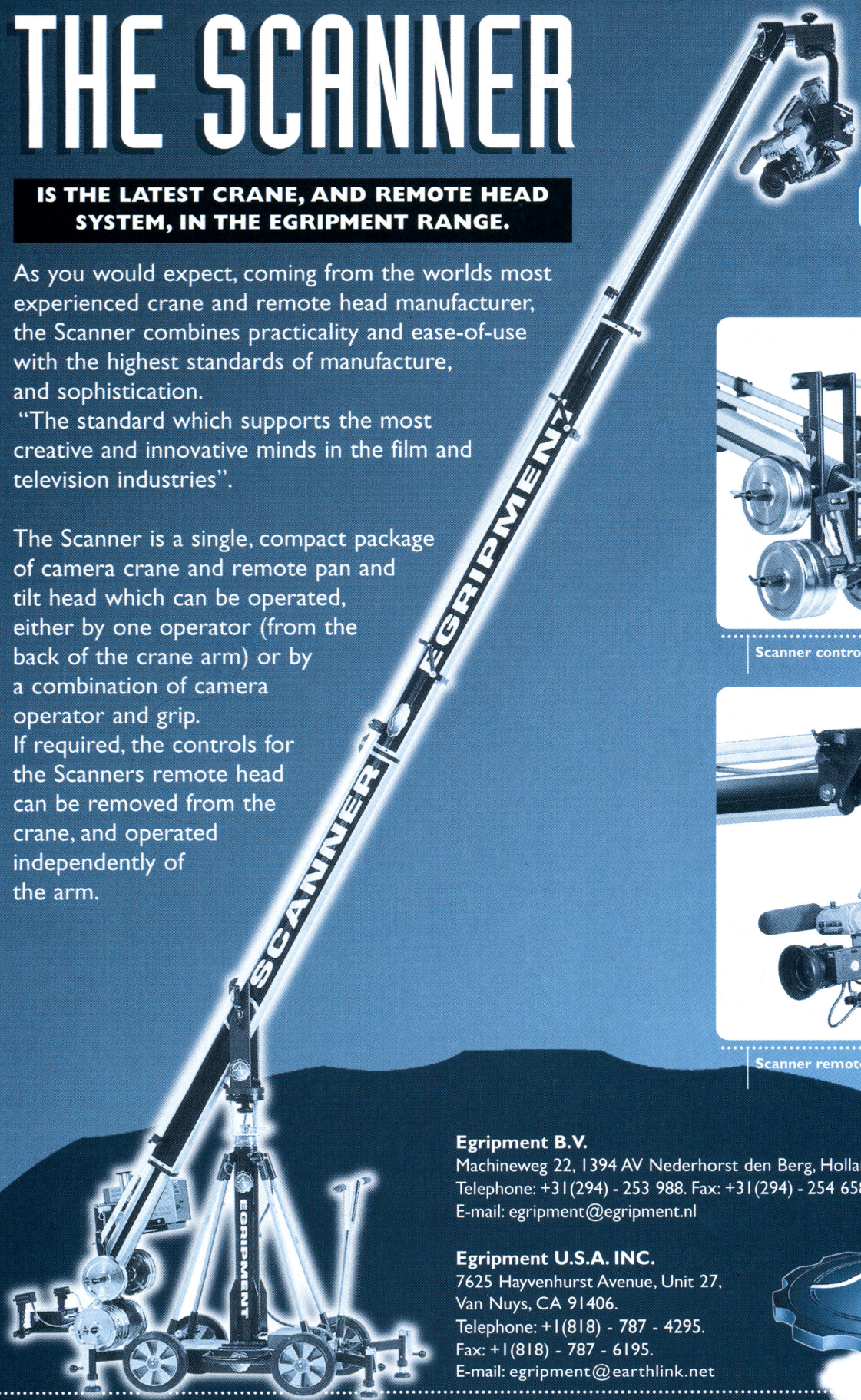

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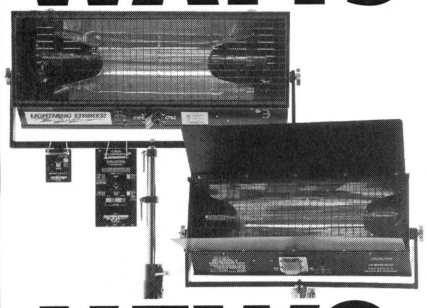

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reality of the day that we shot at the building [on location]. We went to full CTO on the Skypans to suck out some of the blue.

"The computer screens and TV screens are only going to be what they are," he adds. "You can only manipulate them within a stop one way or the other, so you have to be in a ballpark with those elements. A lot of times you have to work backwards from them to get the TransLight to work with the computer screens, the [lighting of the] actual location, the f-stop that we're trying to match, and the film stock from both places."

Foray into the Final Frontier

The "Vegan" spacecraft in which Ellie travels is an enclosed spherical pod equipped only with one chair suspended from a bar fixed to the ceiling. A laptop-sized computer attached to the seat's right arm serves as the ship's control center. The pod interior was illuminated from above with three dimmer-controlled MR16 bulbs secured to the top of the chair. Burgess fitted the laptop monitor with tiny fluorescents to provide a glow from below when the computer face itself was off-camera.

The filming demands of the scene required the construction of three different pods: a fully encased one resting some 30 feet above floor level, and two auxiliary versions only 10 feet above ground level, which could be pulled apart in sections. The various pods were also outfitted differently. Earlier in the film, Ellie's mentor, David Drumlin (Tom Skerritt), takes an ill-fated voyage in a NASA-constructed prototype which sports a stripped-down, industrial-type layout; conversely, Ellie's pod, constructed by an amorphous Japanese conglomerate, is of a more polished, high-tech design.

During the launch, the ship's external rings oscillate rapidly to produce the magnetic energy needed for its liftoff. Burgess' task was to conceive a light source that mimicked these gyrating energy waves. He notes, "The arm [of energy] comes over very slowly when it starts at 40 percent. But the ring deployment keeps getting faster, so by the time you get to 90 percent, it's a really intense strobing effect. We had to take a giant source of light, and then create a chase effect so that the light turns on and off in as if a blade was crossing over it. And we also had to find lights that would go on and off quickly. What we worked really well were giant banks of MR16s. Because the bulbs are small, they actually react more quickly to dimmers: the larger a light is, the slower it reacts to the on-and-off cycle. We brought in a computerized dimming system to control all the lights and create the pace of the on-and-off period. Then we could set it for the particular stage of ring deployment that was being shot [on all three versions of the pod]."

The craft's flight is seen only from Ellie's perspective, even though the pod itself has no viewing portals. Vegan technology, however, allows her to "view" the stellar surroundings by having part of the inner hull "dissolve" in accordance with Ellie's line of sight. The "portal" was realized by placing a patch of bluescreen — into which visuals could be composited — along the craft's inner wall.

Analyzing this subjective take on space flight, Zemeckis offers, "Ultimately, the only way I could do this scene was from Ellie's point of view. The camera never goes out into space; we always present what she can see from wherever she's looking at the universe. It would make absolutely no story sense to show it from any other point of view. And it couldn't be from anybody else's POV because I don't think there's anybody out there. It would be ridiculous to put the camera someplace without knowing whose POV it represents."

To convey the illusion of movement during Ellie's voyage, the production team first devised a "color overview" of the universe extrapolated from known astronomic knowledge. According to this chart, Ellie's pod passes through a few wormholes, flies by Vega and an unnamed ice planet, and eventually ends up in what is referred to as "the golden center of the universe." Each celestial body or phenomenon was afforded a

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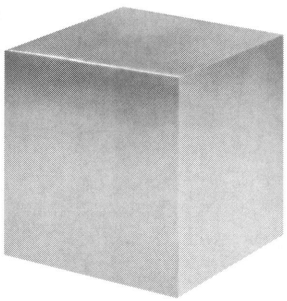

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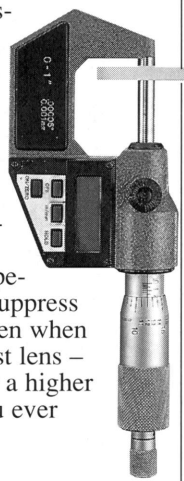

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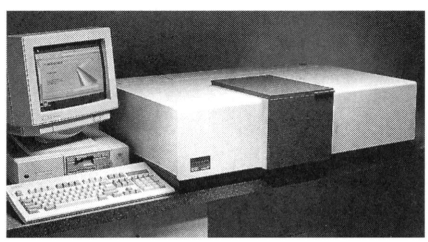

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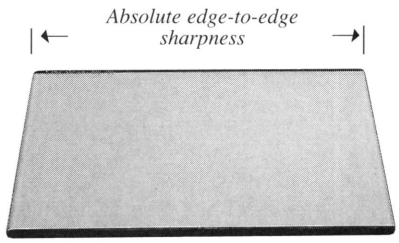

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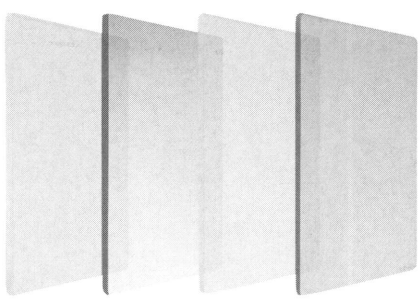

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color scheme which was matched to specific gels. As the pod enters the Vegan atmosphere, for example, the dominant hue is blue; Burgess used a progression of RoscoLux gels: lavender (57), pale violet (355), light rose purple (47) and full blue (3202).

After conceptual drawings of these situations were created, corresponding video images were cast upon Jodie Foster's face with giant video projectors from Background Engineering. Illumination from various fixtures — strobes, flash bulbs, arc lamps and spinning merry-go-round lights — was mixed with the video imagery. Mechanical effects also lent to the sense of motion. One version of the pod chair shook violently, while another was designed to operate upside-down. A weightless effect was created by placing Foster on wires and by rotating the camera as well as the pod. In addition, camera speeds were frequently ramped from 22 to 12fps.

In keeping with the existential tone of Ellie's flight, her voyage ends on a picture-perfect beach which she once envisioned as a child — an illusion the Vegans have generated to make the intrepid scientist comfortable in their unfamiliar milieu. The aliens then communicate with Ellie by taking the form of her long-deceased father, Ted (David Morse). Burgess shot this encounter on a set lined with a bluescreen fitted over three walls and the floor. He felt that this strategy was more effective than working on location, since "the beach had to become surreal. It had to be a separate image that could be manipulated to create super-vibrant color. The sky is not going to be perfect, because at the very top it blends into deep space. As Ellie reaches out to touch things, the image responds with a slight rippling effect.

"We used a 20K as a motivated sunlight source, even though there really is no sun [in the Vegans' hologram]. The rest of the backlights are 10Ks, and the bluescreens were all lit with Super Blue Kino Flos. Down on the floor, I used a lot of white board to create the beach's reflective bounce from below."

Burgess is currently shooting commercials in his hometown of Los Angeles. He says that even though *Contact* was shot on a grueling schedule, he found the production to be a rewarding challenge which allowed him to draw upon his extensive background in second-unit cinematography. "That experience was invaluable, because I got to shoot action sequences at night with multiple cameras and huge lighting setups," he says. "The organizational skills that you develop to make those big setups work really helps on a movie of this scale.

"Plus, you have to understand how to work so many different tools — Lenny arms, Libra heads, Titan cranes, Steadicam — that you tend to use a lot for second-unit work. You have to be familiar with the equipment needed to accomplish the shot — especially when you work with Bob Zemeckis, because inevitably he's going to start a shot as grandly as he can and end in a tight close-up, or vice-versa." ◆

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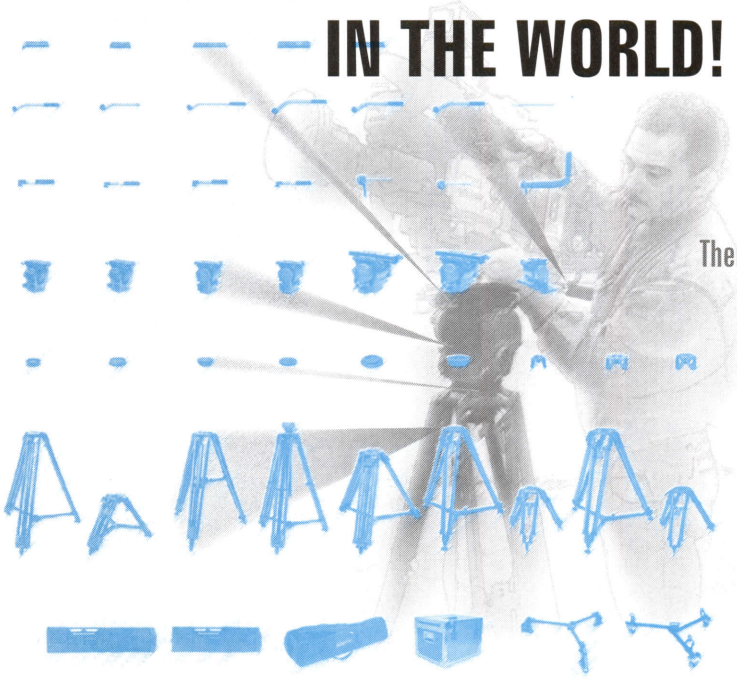

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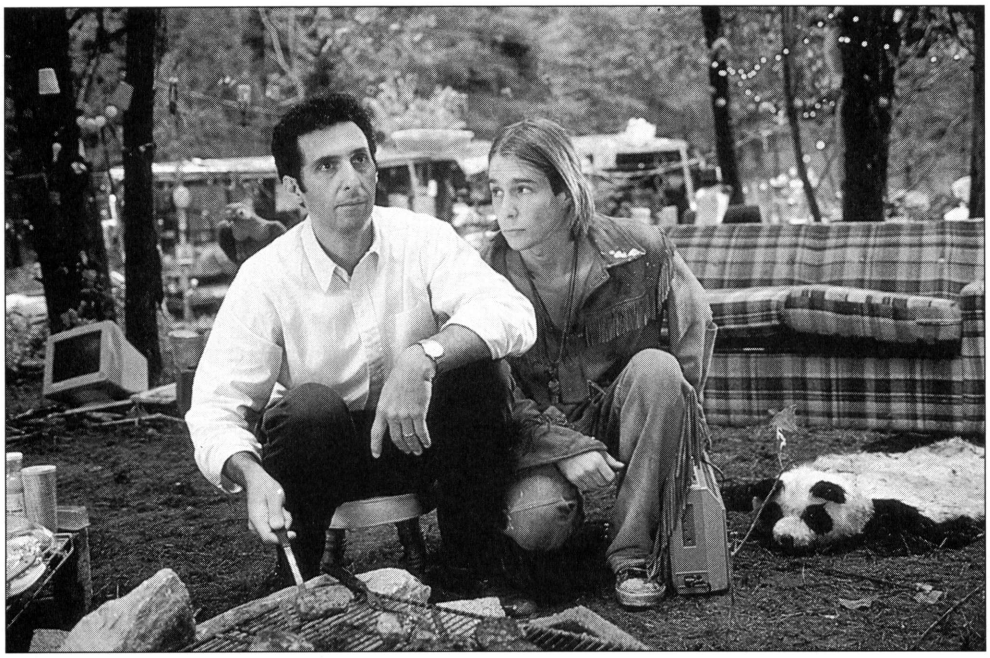
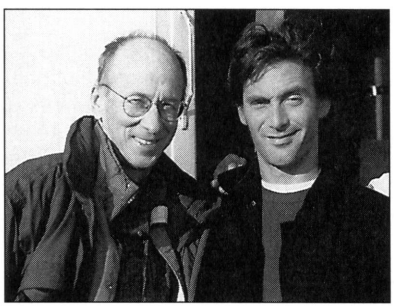
Fountain of Youth

Director Tom DiCillo and cinematographer Paul Ryan, ASC weave a quixotic tale of life, liberty and lawn ornaments.

by Chris Pizzello



Photos by Bill Bettencourt, courtesy of Trimark Pictures and Paul Ryan, ASC.



Above: ***Al Fountain (John Turturro) and The Kid (Sam Rockwell) ponder life's small profundities.*** **Right:** ***Ryan (left) and DiCillo sought to lend the film a layer of lighthearted irony.***

While preparing to shoot *Box of Moonlight*, writer/director Tom DiCillo and cameraman Paul Ryan, ASC came to an agreement that was perhaps a first among director/cinematographer partnerships: they decided that the film they were about to make should, at all costs, look *cheesy*.

Moonlight depicts a transitional week in the life of Al Fountain (John Turturro), a steadfast, disciplined but uptight electrical engineer experiencing a mid-life crisis — signaled by peculiar hallucinations in which he sees ordinary events moving backwards. When the construction job he is supervising is called off, Fountain is left adrift in Drip Rock, a tiny rural town many miles away from his suburban Chicago home. For the first time in his life, he finds himself without deadlines or responsibilities; intent on doing some solitary soul-searching, he tells his wife that the job is progressing as planned, and begins touring the area.

While driving his rental car aimlessly through the countryside, Fountain encounters The Kid (Sam Rockwell), a freespirited and slightly disturbed young man dressed in a secondhand Davy Crockett outfit. At first, the two opposites mix as poorly as oil and water, but after a series of shared misadventures and personal revelations, an odd but meaningful friendship is struck. The Kid's *joie de vivre* rubs off on Al, while Al's innate sense of personal responsibility similarly affects The Kid. By the time he goes home to his family in the suburbs, Al Fountain is a changed man.

"I didn't want this film to be 'southern romantic,'" DiCillo explains. "I didn't want it to be 'Americana.' I didn't want it to be 'trailer park sleaze.' I didn't want it to be 'pretentiously hip.' As we looked at our locations in Tennessee, talked to the art department and referred to still photography, we kept on coming around to something that had the word 'cheesiness' attached. That word just excited us all. Visually, I kept stressing to Paul that the world in this film should have a 'tattered Christmas ornament' feel to it.

"Take someone's house, for example," he elaborates. "It could be just a normal house, but out front they have something they are obviously quite enamored of, like a plastic flamingo. It's not even a good plastic flamingo, but a cheap one that's barely painted. It's that element of 'cheese' that we really responded to — the careful placement in every frame of stuff that was verging on ugly. But our placement of [the objects] had an ambiguity to it, so that these things became almost beautiful."

Ryan has earned a glowing reputation for bringing out the beauty of natural environments in his second-unit work on such films as *Days of Heaven* and *A River Runs Through It*, and as director of photography on *Where the Rivers Flow North*. He says that *Box of Moonlight*, on the other hand, offered him a refreshing chance to subvert his natural aesthetic instincts. "A lot of the films I've done have portrayed the environment as a magical place," he comments. "But in this picture, Tom wanted to bring out the sloppiness of parts of middle America, the *messiness*. I

had to keep that image in my mind. I thought that this movie should look like the kind of American postcard you can buy after a bad lunch at a diner on a two-lane blacktop road in the midsection of the country. Every now and then, I would start to make things look pretty and Tom would come up behind me and whisper, 'Cheesy... cheesy... '"

Box of Moonlight is DiCillo's first film since *Living in Oblivion*, his acclaimed satire on the humorous and occasionally surreal tribulations of an independent film production (see *AC* Sept. 1995). The New York University film school graduate was well-versed in that frantic environment, having served as a cinematographer on eight independent films before writing and directing his own first feature, the quirky *Johnny Suede.* DiCillo, however, downplays his sojourn as a director of photography. "I fell into cinematography completely by accident when [director] Jim Jarmusch and I became friends," he stresses. "He asked me, as a lark, if I would shoot his first film, *Permanent Vacation.* I had never shot anything before or even intended to shoot anything. But we were both so pleased by the results that we proceeded to work together again on his film *Stranger Than Paradise.* I put all of my energy into cinematography when I was doing it, of course, but I never actively sought work as a cinematographer and always thought of it as a detour."

Paul Ryan's route into cinematography was considerably more circuitous. A Newton, Massachusetts, native, Ryan studied aeronautical and mechanical engineering at Rensselaer Polytechnic Institute in Troy, New York. Upon graduation, he put his engineering plans on hold to pursue one of his lifelong dreams, competing on the national ski racing circuit out of Aspen, Colorado. During his year on the circuit, Ryan developed an interest in still photography, eventually landing a job as a staff photographer at a ski area.

Fueled by the revolutionary changes occurring in film during the late Sixties, Ryan went on to enroll in the graduate film school program at San Francisco State University. The young filmmaker was subsequently given a rare opportunity to combine his twin passions when he was commissioned to make a documentary about the European ski racing circuit. "The first plastic ski boots were invented by a company called Lange," he recalls. "They were so far ahead in their industry that literally 80 percent of the ski racers in the world wore their boots. They had more money than they knew what to do with. I already knew a lot of the guys in ski racing, so the Lange people said to me, 'Why don't you make us a film about it? Show the boots every now and then, but just go and do it.' So I basically had a blank check to go to Europe and follow the racing circuit for six weeks! Nowadays, no one would give a green kid just out of film school that kind of freedom."

Ryan used the opportunity to break away from the previously staid conventions of sports filmmaking and experiment with the gonzo visual ideas that were invigorating the greater film world at the time. He cites the *cinema verité* styles pioneered by Jean-Luc Godard and the Maysles brothers, replete with jump cuts and other non-traditional film language, as inspirations. The result of Ryan's efforts, *Ski Racer,* went on to become a classic of the nascent ski documentary genre. Ryan's success led to further documentary work, with subjects ranging from the Hell's Angels in San Francisco to artist Salvador Dali at his home in Spain.

After landing a job shooting production stills on George Lucas' classic *American Graffiti,* Ryan's appetite was whetted for feature-film work. He got his opportunity when director Terence Malick asked him to handle second-unit direction and cinematography on the film *Days of Heaven* (shot by Nestor Almendros, ASC, and Haskell Wexler, ASC), which earned an Academy Award for Best Cinematography.

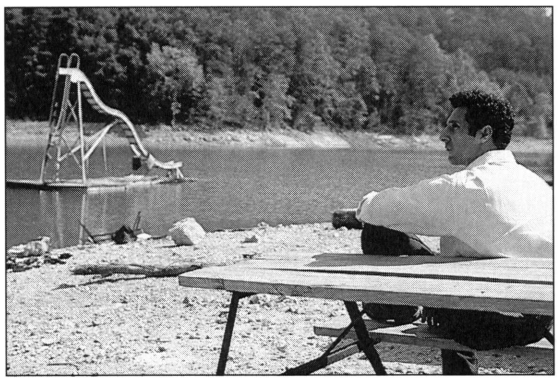
Left: *Al and The Kid enjoy a flirtatious Fourth of July with the impish Dupre sisters, Purlene (Lisa Blount) and Floatie (Catherine Keener).* Below: *The cheesy feel of The Kid's digs — located well "off the grid" of society — was enhanced by Christmas lights and eccentric ornamentation.*

Right: ***The Kid communes with the outside world via his television set.*** **Below:** ***Al revisits the now-decrepit waterslide at Splatchee Lake, where he once frolicked as a boy. "A lot of the films I've done have portrayed the environment as a magical place," says Ryan. "But in this picture, Tom wanted to bring out the sloppiness of parts of middle America, the messiness. . . I thought that this movie should look like the kind of postcard you buy after a bad lunch at a diner on a two-lane blacktop road."***

Since then, Ryan has cannily balanced his career between second-unit work on such big-budget features as *A River Runs Through It* (which earned an Oscar for Philippe Rousselot, AFC) and *Something to Talk About* (shot by Sven Nykvist, ASC) with his own director of photography assignments on smaller independent films, including *Alan and Naomi*, *A Matter of Degrees* and the recently completed *Other Voices, Other Rooms.*

Not unexpectedly for a low-budget film with no marquee names in the cast, *Box of Moonlight* endured a long period of development limbo before the filmmakers were given the proverbial green light to enter production. Ryan used the downtime to research and gather visual imagery for inspiration in committing DiCillo's idiosyncratic screenplay to film. "This story was really about the guts of Middle America, especially the Southern part," Ryan explains. "The film never defines what city we're in, but we ended up shooting in Knoxville, Tennessee, which is where we all felt this story could take place."

Ryan found key visual cues for *Moonlight* in the work of American street photographers. He details, "We were looking for that whole underbelly of America. William Eggleston's photos of the South certainly have that feel — the obsessive observation of the trivia of America. Joel Sternfeld's book *American Prospects* would be another photographic reference. He has one picture of a burning house, with a fireman in the foreground buying a pumpkin at a pumpkin patch. To me, that's almost like Tom DiCillo's sense of humor — why isn't the fireman putting out the fire?"



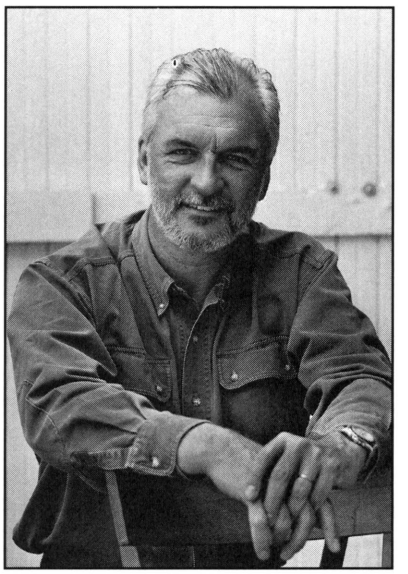
The bemused and surreal tone of those photos would later reappear in at least one scene in *Moonlight*, a relatively simple shot of Al Fountain's car as it drives past a junk furniture shop on the outskirts of Knoxville. "Part of the film is about this environment of junk shops and billboards," Ryan explains. "We found an old chair in a furniture store, and I remembered from Tom's previous films that he has this [fascination] with things on fire. There's a lot of primal fire and water imagery in this film, anyway. So we decided to buy the chair for $15, move it out to the side of the road, pour lighter fluid on it, set it on fire, and yell, 'Action!' In the shot, Al drives by in his car. As we're panning with him, the burning chair comes into the frame. It was never scripted or planned at all."

According to DiCillo, the mysterious shot was also a clever way to tweak a particularly vociferous member of the crew, who was steadfast in keeping the harried 34-day shoot on schedule. The director recalls with a chuckle, "Every time we'd barely finish a setup, this guy would yell, *'Hurry up, hurry up, let's go, next shot, next shot!'* So after we had the shot of the car driving by — which at that point didn't include the chair on fire — this guy starts yelling. I just said, 'Hmm... I don't know, I think there's something missing from this shot.' So we lit the chair on fire! It completely blew this guy's mind, because we didn't have the fire department there or anything. But to me, that's one of the most exciting shots in the film."

Ryan also tries to open himself up to indirect visual influences before starting a film. "In this case, I happened to attend an exhibit by [pop artist] Claes Oldenburg while I was getting ready for production," he says. "What Oldenburg did in this exhibit was take real objects that are steely and rigid, and collapse and soften them into a more visceral, messy form. To me, it made a lot of sense with what goes on with the main character in this film. Al Fountain is an engineer whose entire measure of life is how things fit together exactly, and how they're completed on schedule and on time. But as the film goes on, he expands himself and becomes a bigger person when he starts to loosen up and let go. The steely iron hammer becomes a soft, floppy hammer, as Oldenburg might make it."

Since Al Fountain's gradual emotional expansion was the fulcrum of the story, the filmmakers took particular care in the lighting and framing of actor John Turturro. "The idea was to make him look subtly larger than life,"

"I needed one frame per second, *with even exposures;* they removed the motor, mounted it on a bracket outside the body and modified the timing belts so the movement drive ran five times slower than the motor's indicated speed"



Director/Cameraman
Michael Werk

"The ARRI 3 motor is designed to run at three frames or faster," says Michael Werk. "Running it more slowly gives you speed fluctuations, which cause uneven exposures. When you project that footage at normal speeds, you get a flicker effect."

"For one car commercial, we wanted to try some shots at one and two frames per second. The footage would be going to Telecine at specified speed rates, so I needed uniform exposures frame to frame. That meant accurate speed control in the camera."

"We wanted *blur* in the low-speed shots. A stop-motion camera would give us accurate speed, but it would also give us short exposures—too short for blurred images. The rest of that commercial would be shot at 24 frames with an ARRI 3. I asked the Clairmonts whether there was some way we could use that same camera for the slow-speed footage."

"As usual, they came up with the answer. They took the motor out, mounted it at the back and made special timing belts that would underdrive the camera. To run the movement at one frame, you had to set the motor to 5 fps. For two frames, you set it to 10 fps. To run at 24, you set it to 120."

"We shot the whole job with that camera and it worked perfectly. I wasn't surprised—they've been supplying me with custom stuff for years," says Mr. Werk. "Back in the early Eighties, there were no combination filters. I sometimes needed an 85, a pola and two or three grads; so I asked Clairmont to make a six-stage 6x6 mattebox for me. Those things are common now, but that was the first one."

Michael Werk has been a Director/Cameraman since 1983. One of his Porsche commercials won a Silver Lion at Cannes.

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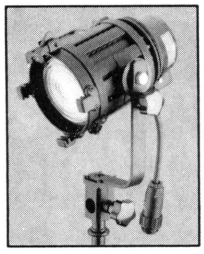

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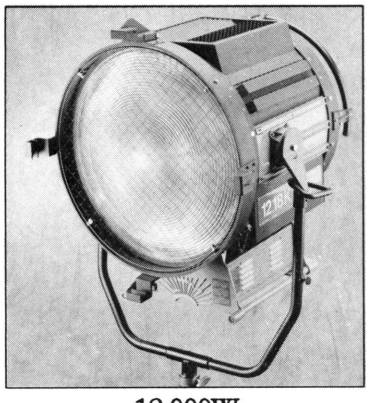

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Ryan explains. "I think it was Tom who said that Al should look like Burt Lancaster as *Leave it to Beaver's* Ward Cleaver, a larger-than-life figure playing this very middle-American role. So we put a lot of kickers on him, which I usually don't like to do. I tend not to use a lot of backlighting unless it's really necessary, sticking to more of a soft half-light on people. I would put a kicker on John but not on other people, so that only he would have that slightly bigger-than-life look."

Regarding fixtures used to this end, Ryan adds, "I like to use Japanese lanterns and space lights quite often. For this show, I had a couple of mini space lights made up that each used two 1K globes. The lights were [surrounded by] cylinders of silk that were 3' deep and about 1 ½' wide, and I had a series of black Duvatyne strips attached to them that could be hung down or picked up as necessary. It was like a big light source, only directional. It could make a soft light in one direction, then I could open a Duvatyne strip on the other side to let light come out the back side. Space lights are very mobile and can also be mounted to a boom arm so you can follow an actor with it through a shot. We also had to put a fair amount of eyelight on John with an inkie, because his eyes are very deep-set."

> "Every single element of a film should serve *what's going on* in the film. Not one frame should be purposeless, and the same goes for camera moves."
> — Tom DiCillo, director

DiCillo and Ryan were also careful to utilize their Tennessee locations to help define the Fountain character. For the opening scene, in which the audience first encounters him at the construction site, the filmmakers happened upon the perfect graphic representation of his rigid, unyielding existence. "We shot John through a series of vertical aluminum studs," DiCillo explains. "That location was a real construction site and they let us shoot there for two days. When we scouted the location and shot-listed that scene, the studs weren't there. By the time we came back a month later, the construction crew had been working for a while. So here were all of these metal studs in this shot we'd already planned. I figured, let's use them!"

Camera movement was used judiciously in *Moonlight*, usually as a psychological exclamation point for important moments in the story. "Every single element of a film should serve *what's going on* in the film," DiCillo declares. "Not one frame should be purposeless, and the same goes for camera moves. What I try to do with the camera is surprise the audience in an enjoyable way — just when they think something is going to be revealed in a certain way, we in fact reveal something else in a different way. It's almost as if there is even humor in the camerawork."

In one crucial scene early in the film, the introverted Fountain convinces himself to join in his workers' nightly poker game, only to arrive outside their hotel room and overhear loud insults at his expense. "Fountain's entire world is shattered," Ryan comments. "He realizes that the guys he works with hate him. Instead of keeping the camera stationary as he walks back down the hallway, or following him, the camera pulls back from him to highlight the isolation he feels at that moment. Tom called that move a 'Chinese dolly.'"

According to DiCillo, the shot was an homage to one of his favorite films, Bernardo Bertolucci's *The Conformist*. "In that film, Vittorio Storaro [ASC] did a shot of Jean-Louis Trintignant coming out of an elevator," he recalls. "Just as I was expecting the camera to follow him down the hall, it did the opposite and pulled back! I was utterly surprised, and yet it was so perfectly elegant for that scene. I always remembered that move and figured it would be perfect for this scene in *Box of Moonlight*." ➢

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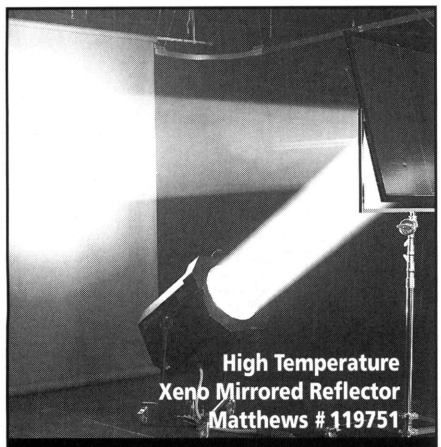

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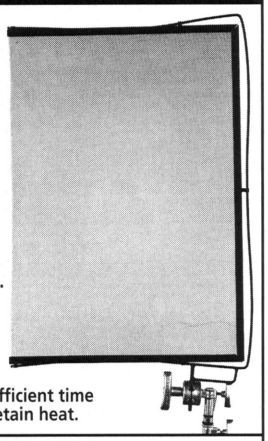

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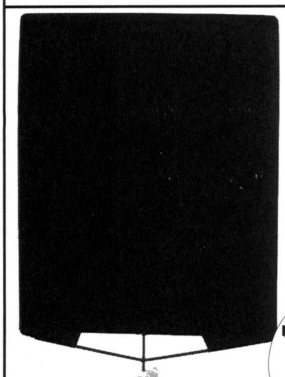

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DiCillo tries to keep himself open to "happy accidents" on the set that might elevate a standard scene into something interesting and unique on its own terms. In one instance, the filmmakers were faced with a potentially dull transition shot that follows Fountain's car as it pulls into a motel parking lot. "What I had in mind was to move the camera past a boy and his sister lounging around the motel pool in the foreground," the director describes. "Then I noticed that the boy was very, very fat. Figuring that he was going to say no, I asked the boy if he wouldn't mind taking his shirt off. With the biggest, most cheerful smile, he said 'Sure!' I don't know why, but it struck me as so interesting that I just said, 'Why don't we have him chase his sister around?' What it did was lend a really interesting foreground action to what would have been just a dolly shot of a car going into a parking lot.

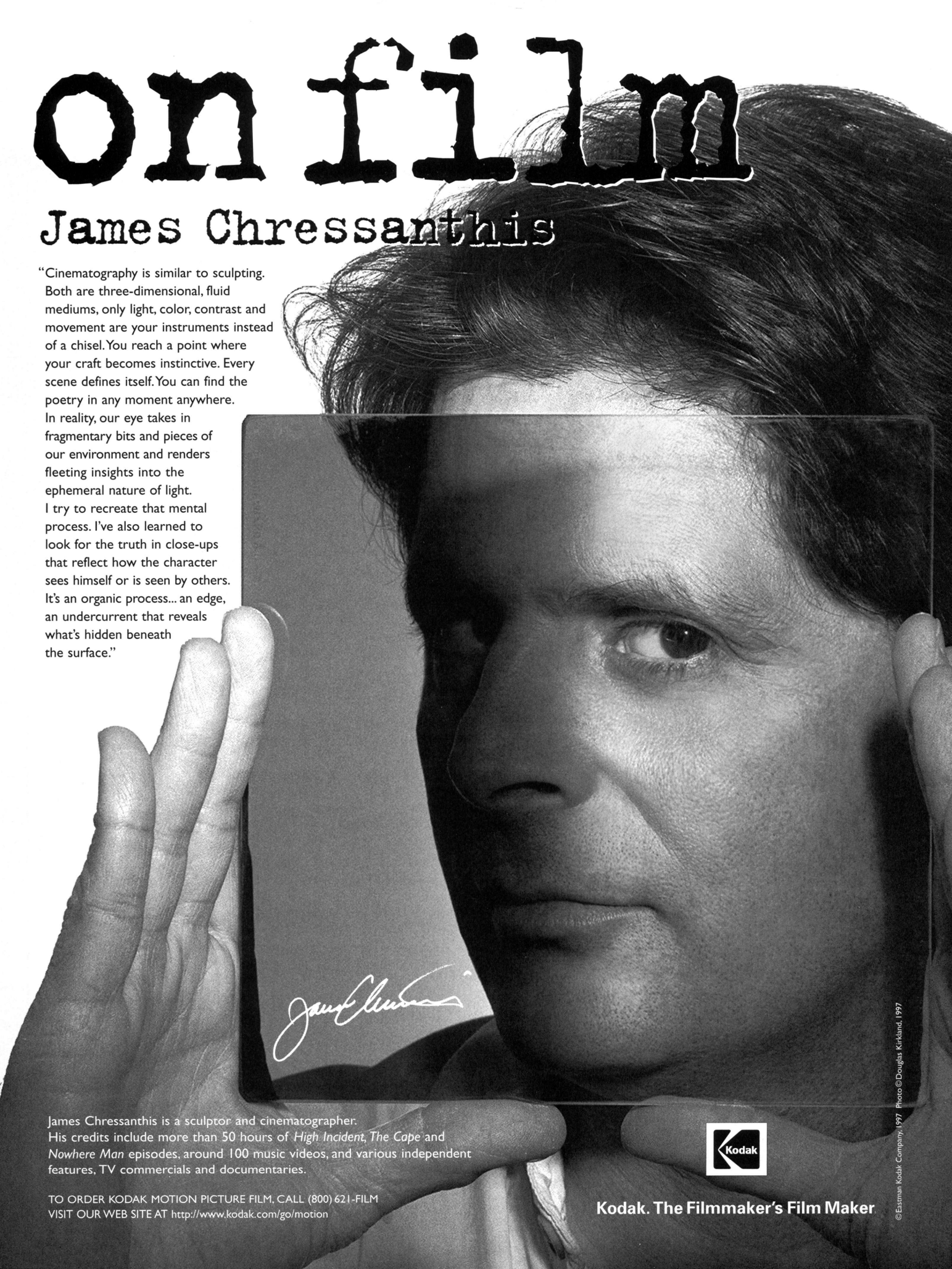
"Film tends to remove spontaneity from the audience in some ways," DiCillo attests. "So whenever something real happens right in front of you, it's very exciting and it adds an energy to the film that's just crucial."

What initially excited Ryan most about the script were the small touches of surrealism sprinkled throughout, exemplified by Fountain's queasy hallucinations, in which commonplace events — such as a waitress pouring a pitcher of water into a glass, or a child riding a bicycle — are seen moving backwards. Ryan chose to shoot *Moonlight* with a Moviecam Compact (obtained from Clairmont Camera) for its light weight, quietness and ability to film in reverse without needing a special configuration. "Technically, we could have done those shots as opticals," the cinematographer points out. "But I wanted to keep them as first-generation as possible."

Even with the ease of operation afforded by the Moviecam, Ryan and his wife, Priscilla Cohen, had to spend an entire day rehearsing video tests of the scene in which Turturro watches water travel back into a waitress's pitcher. "Previsualizing things in reverse is difficult. The problem wasn't so much the pouring, because that was in a cut where the water goes back into the pitcher," Ryan explains. "The tricky part was all in the motion of the actress. If she comes in frontwards and pours, that's not going to work, since the camera is filming backwards. I had to have Priscilla back into the test scene, pour the water, and then back out again. In real life, you end up with a full glass and an empty pitcher, so on the screen, in reverse, you have an empty glass and a full pitcher."

For the scene in which Fountain watches aghast from a bus window as a child appears to be riding a bicycle backwards, Ryan suggested an extra compositional element to add to the POV shot's believability. "During tests we filmed in the parking lot at Clairmont Camera, I had another kid walking through the shot *forwards*, to play off the kid riding the bicycle *backwards*," he describes. "So that meant the actor would have to walk backwards during the filming. We ended up not using him for the shot in the final film, but the interesting principle is that it's very hard to walk backwards and make it look natural. So during the test I had the kid carry a big heavy load, so he would look unnatural and awkward anyway!"

As The Kid's anarchic spirit becomes infectious and Fountain begins to open himself to new experiences, Ryan subtly altered his composition to free Turturro's character visually. "We opened up the frame and created more of a sense of space around him," he explains. "In one scene where Al gets into a tomato fight with The Kid, you've got these confining, rigid stocks of tomato plants, which are similar to the steel construction at the plant in the beginning of the film. But now he just starts breaking them all down and throwing tomatoes. We also tried to break down those kind of barriers compositionally. We used a Steadicam for the tomato fight scene, operated by Jim McConkey, with first camera assistant Drew Gianetta pulling focus. In the second half of the film, we also tried to play off the Al's sense of wonder-


on film
James Chressanthis
"Cinematography is similar to sculpting. Both are three-dimensional, fluid mediums, only light, color, contrast and movement are your instruments instead of a chisel. You reach a point where your craft becomes instinctive. Every scene defines itself. You can find the poetry in any moment anywhere. In reality, our eye takes in fragmentary bits and pieces of our environment and renders fleeting insights into the ephemeral nature of light. I try to recreate that mental process. I've also learned to look for the truth in close-ups that reflect how the character sees himself or is seen by others. It's an organic process... an edge, an undercurrent that reveals what's hidden beneath the surface."
James Chressanthis is a sculptor and cinematographer. His credits include more than 50 hours of *High Incident*, *The Cape* and *Nowhere Man* episodes, around 100 music videos, and various independent features, TV commercials and documentaries.
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ment. After the scene in which Floatie [Catherine Keener] slips Fountain a nondescript drug, we just poured light into his face from a lower angle to create that sense of openness."

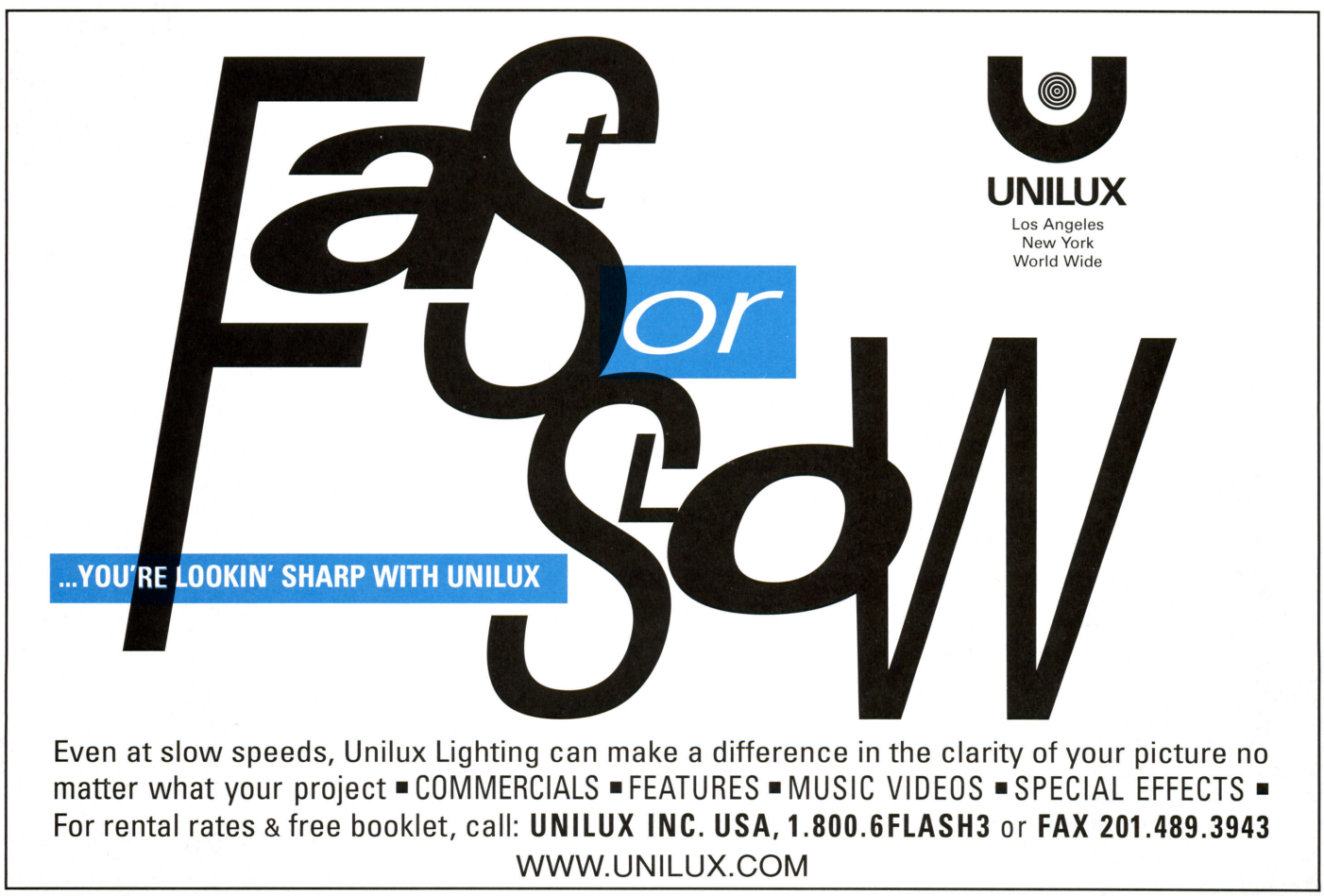
Fountain's self-imposed world of order finds its sloppy antithesis in The Kid's ramshackle mobile-home abode, which is half-open to the woods. Production designer Therese DePrez festooned the area with garish Christmas tree lights and bizarre lawn ornaments. "My gaffer, Mick McNeely, and key grip, Andrew Farley, did a great job rigging that area," Ryan comments. "We had to use that location for day and night scenes, and we couldn't take the time to rig it every night. We did a high-wire rigging of the trees with three 6K space lights, which each held six 1K bulbs in a 4' x 2 ½' cylinder. The space lights were all on individual dimmers, so that we could take them down as needed. We could accentuate the overall ambience provided by the space lights with more specific units, like 2K juniors and seniors. I would often put double 85 gels on those lights for the actors, as if the light were coming from the warm-colored sources all around the Kid's backyard. All of the little lights you see in the backyard are practicals, set up all over the place. We just supplemented those where we needed it.

"When trying to light night backgrounds over big areas, I'd generally paint little areas with Fresnels on full spot, which fell off nicely. That was a tip I picked up from Conrad Hall [ASC], who had used that effect on *Searching for Bobby Fischer* [see *AC* Feb. 1994]."

The variety of outdoor locations Ryan faced during the production compelled him to juggle several different film stocks. "I carried too many stocks on that show!" he admits with a laugh. "I used Eastman Kodak 5245, 87, 93 and 98. I had never shot the 200 ASA 87 before, which was a low-contrast film [that has since been discontinued]. I thought it would be great for this film since we had so many scenes in the woods, which is one of the worst lighting situations possible. I figured I wouldn't be able to control the light coming through the trees all the time. The 87 was pretty good, although it had a tendency to create a sort of 'golf ball grain,' especially if you were shooting a mid-toned wall with no texture. But for all of the scenes in the woods, it would really dig into those deep shadows. That grain problem has been solved with 87's replacement, the Vision 320T."

When the production didn't receive a shipment of 5298 stock needed for a night dialogue scene between Turturro and Rockwell in the woods, Ryan was forced to substitute the 87. "I had to open up a stop more, but it was really good," he remarks. "If I had known that earlier, I might have used that film more for night exteriors with people in them. Turturro has these deep shadowy places in his face, and the 87 really gave a kind of softness to it. It wasn't as harsh, and the grain structure was tighter than the 98."

Perhaps the most heavily planned and discussed scene in *Box of Moonlight*, from a visual stand-



point, was a lengthy aerial sequence for the opening credits, in which the camera swoops over and through Tennessee's Smoky Mountains in just a few shots. As well as being a pilot himself, Ryan has extensive experience in aerial cinematography from his second-unit work on films such as *A River Runs Through It*. "We knew we wanted the sequence to be long, continuous shots, two or three at most," the cameraman explains. "That meant the locations had to be very specific, so we did a lot of scouting by airplane and by helicopter. The aesthetic questions about the shot were whether it should be a straight-ahead, purposeful search or whether the camera should have a more exploratory feel. I actually thought that a sense of exploration would be better, in which the camera would look around, stop and pause, and then move on somewhere else, as if it were looking for something.

"Eventually, we thought, 'It's the beginning of the film — maybe we don't want the wandering yet.' So we decided on a more straight-ahead eye, looking but not really wandering. We achieved that by using variations in altitude, coming down low, then going up high and coming down low again. At one point we were about five feet off the water! We ended up using an Arri III with a 16mm Zeiss lens on a Tyler nose mount, which definitely gives you a sense of going straight ahead. You could tilt down and tilt up. We filmed the whole sequence in an afternoon."

For a melancholy scene in which Fountain revisits the site of his lone happy childhood memory — frolicking at the now-polluted Splatchee Lake — Ryan was forced to reconcile DiCillo's fetish for wide-angle lenses with the shifting light of an all-day shoot. "We only had one day at that location," Ryan recalls. "We shot from sunrise to overhead sun to sundown. The tricky thing was making it all match, since the scene is supposed to take place in 10 minutes. We changed film stocks from 45 to 98 by the end of the day. We used big silks when we could, but by the end of the day we had to bring in a couple of 12Ks to add the light that just wasn't there anymore.

"A lot of times you can cheat by moving people 15 or 20 feet, but that wasn't possible at this location. Also, Tom tended to go much wider with the lenses than what I would be thinking! It's just the way he sees the world — he doesn't like to tell the viewer how to look at things. When you're shooting a close-up with say, a 100mm lens, you can position people anywhere if you need to cheat a shot, since the background will be less recognizable. But with a 25mm, we had to use other means, especially because the compositions are more defined — the audience will be aware of every element in the background, as there is a greater angle of acceptance and more depth of field. Because of that, the characters have to work in concert with these other elements. This was a theory that Henri Cartier-Bresson worked with — if you take the human element out of the picture, the frame should still have a graphic composition. Of course, the real trick is

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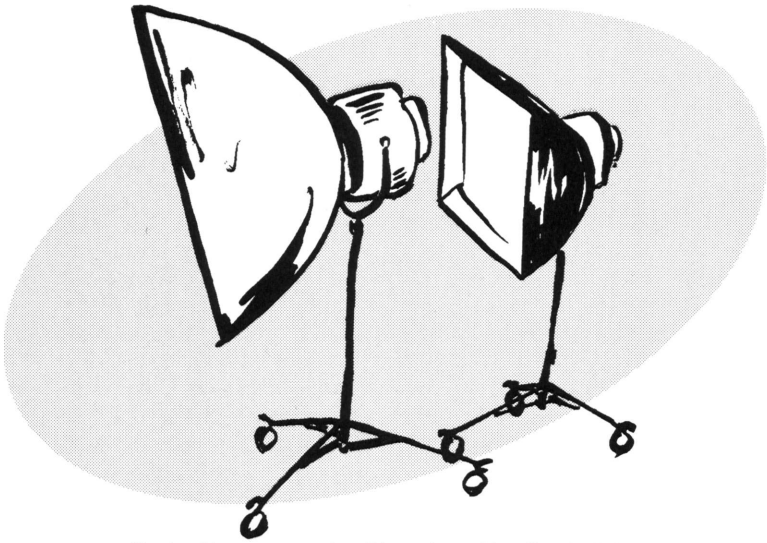

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still trying to decide where to hide the lights."

In general, however, the makers of *Box of Moonlight* preferred to bypass strict realism, paralleling Fountain's journey into the world of the illogical and fantastic. In one brief but striking scene, Fountain returns to his hotel room after a troubling day and peers out the window as he takes off his tie, only to see an older man going though the exact same motions in a similar room in an adjacent tower. Both are bathed in an eerie glow. "That was a very unnatural lighting setup, unabashedly so," Ryan laughs. "It's actually the same window in both shots, from reverse angles. The man across from Al Fountain is meant to be a picture of him in the future. We had Kino Flos inside the room for a soft crosslight, and we used a 5K to the right of the camera, spotted full-on and cut with some flags so that it was a narrow beam hitting the actors. It was totally unrealistic lighting, but we were trying to get across a state of mind."

When asked about the importance of logic in the look of his films, DiCillo's answer strikes at the thematic core of *Box of Moonlight*. "I don't think logic has a place in the movie business," he asserts. "I said to Paul, 'Let's throw out logic before we set up this world, but once we do set it up, let's keep that world.' So there is a sort of *crazy logic* that wants to work.

"For example, there's a scene in a coffee shop in which a waitress is coming on to Al. We put neutral density on the windows, because it was the middle of the day and we wanted it to look like night outside. We kept putting ND on, and suddenly I noticed that the windows were turning this incredible shade of purple. It was completely illogical, and didn't look like any night or twilight I'd ever seen. But the color was amazing! So I said, 'That's good — let's shoot it.'

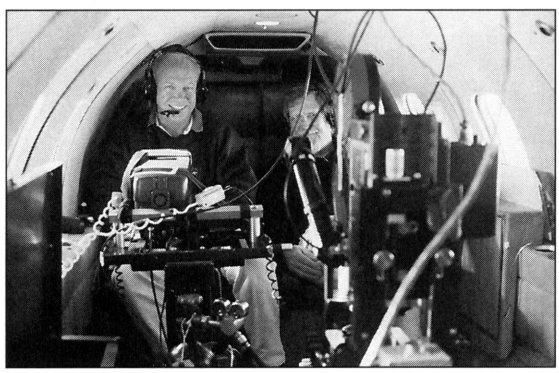
"At least in this particular stage of what I'm up to, I like to create worlds that are in a way like adult cartoons," he concludes. "There's always something a little odd around the edges, yet there's still a strange, illogical beauty in things." ◆

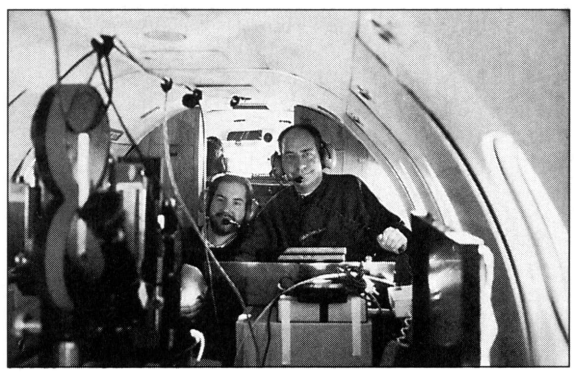
Air Force One: A High-Altitude Hijacking

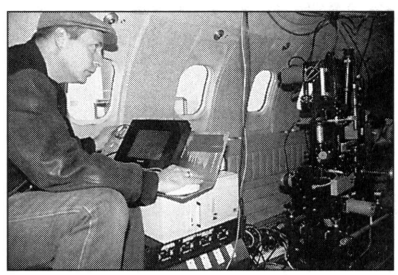
Boss Film taps Nettman & Associates' innovative, high-tech aerial systems to add adrenalin to action film.

by Les Paul Robley

In Columbia Pictures' *Air Force One,* Russian neo-nationalists hijack the First Airliner with the President (played by Harrison Ford) and his family on board, plunging the free world into crisis. To accomplish this hi-tech kidnapping aboard the nation's most tightly guarded flying fortress, director Wolfgang Petersen (*Das Boot, Outbreak, In the Line of Fire*) called on the technical resources of Boss Film Studio and visual effects supervisor Richard Edlund, ASC (*Ghostbusters, Multiplicity*). Together with effects co-supervisor James E. Price and the crew at Boss, Edlund created the special effects of a Boeing 747 in turmoil (as he had previously this year for MGM's *Turbulence*), this time adding some high-flying visual strides in the process.







Photos by Les Paul Robley.

Clockwise from top left: ***Mehnert and Edlund at their stations inside the Lear Jet 25, with the Vectorvision unit and mounted Fries 35mm camera in the foreground; Price and Robley take their places aboard the aircraft; Robley operates the Vectorvision unit with a Kuper LCD computer. Light-colored motors on the device are steppers, while Point Blank drivers can be seen underneath the laptop; (from left) Robley, Vectorvision assistant Kent Hughes, Edlund, Price, and Boss Film line producer Chris Brown return to terra firma.***

One of these technical advances is possibly the first use of motion-control snorkel lens cinematography aboard a jet aircraft. For *Turbulence,* live-action production crews incorporated Bob Nettmann's Cam-Remote system and used it in a studio environment, placing sections of a 747 on giant gimbals and maneuvering them around with people inside. The Cam-Remote is a remote-control camera head which makes it possible to position a camera in spots that are too dangerous or difficult for a human operator. Already widely used to cover news broadcasts and sporting events, the Cam-Remote earned Nettmann both an Emmy and his fourth Academy Award.

The German-born engineer began working in the States in the 1960s as a designer of digital recording equipment for NASA's manned space flights. He later moved to California, turning his attention to aerial photography. One of his most significant inventions was unfortunately inspired by the tragic death of a close friend who was killed while operating a camera through the open door of an aircraft during the production of the 1970 film *Catch-22*. At the time, Nettmann was working on an electromechanical optical relay, or periscope device. He soon developed Astrovision, the first optical relay system to be combined with a Kenworthy/Nettmann snorkel camera and installed aboard a Lear Jet 25. Despite the fantastic speeds, high altitudes and excessive pressures involved in jet photography, Astrovision proved to be a breakthrough in making high-speed aerial camerawork safe and reliable. Housed within a pressure port, the periscope protruded through the belly of the modified jet, while the human operator — along with the motion picture camera and the motorized mechanisms used to drive the pan and tilt functions of the lens — remained safely inside the aircraft.

In 1972, Nettmann patented his device, forming his own company, Continental Camera Systems. The equipment was quickly adopted by Hollywood and employed in now-legendary sequences for the James Bond movies, *Concorde: Airport '79* and *Top Gun,* among other pictures. The Astrovision system also earned

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Nettmann his first Technical Achievement Award from the Academy of Motion Picture Arts and Sciences.

In 1986, a new and improved version of the device — Vectorvision — was introduced (see New Products *AC* May 1997). This system permitted 360-degree camera rolls, motorized zoom and focusing techniques, videotape and high-resolution TV recording with downlink to Earth, plus higher-speed lenses, allowing for more low-light "magic hour" shots. The new system has garnered even greater acceptance in the industry. Vectorvision has been used to film dramatic sequences for *True Lies, Drop Zone, Passenger 57* and *Executive Decision,* and is now featured exclusively by the Van Nuys, California companies Spirit Aviation and WolfeAir Limited, both of which own Lear Jet 25s modified to carry Nettmann's equipment.

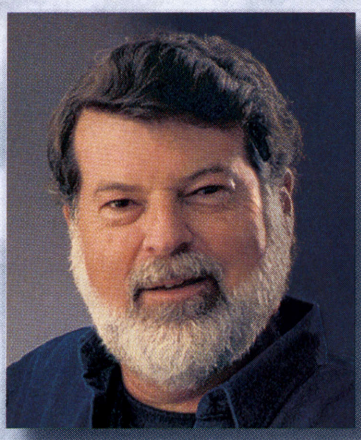
Boss Film elected to use Vectorvision on *Air Force One* in order to combine the months of painstaking motion-control miniature photography filmed on stage with realistic cloud backgrounds shot in real-time using the same camera move information. "I've known Richard Edlund for many years," Nettmann says. "He's used my Kenworthy/Nettmann snorkel system. I understand he had to convince the production company that this was the right way to go. To my knowledge, it's the first time that motion control has been used in conjunction with Vectorvision to shoot plates from a jet aircraft."

Motion-control, of course, is a process by which camera or model moves can be repeated as accurately as allowed by the precision of the stepper or servo motors used to complete the maneuver. Since most stepper motors can be set to 5,000 pulses or more per revolution, the accuracy available for a single motor to move a given number of pulses-per-unit of travel is very high. Suppose, for example, a pan rotator must travel 1,000 pulses to complete one degree of movement. If one enters "1,000" as the pulses-per-unit, the position shown on the computer screen will change by "1.000" for each degree the pan arm moves. This means that any move can be repeated with accuracy up to one-thousandth of a degree, depending on the anti-backlash capabilities of the motion-control equipment. Operators may select any type of unit they prefer: inches, degrees, millimeters, etc.

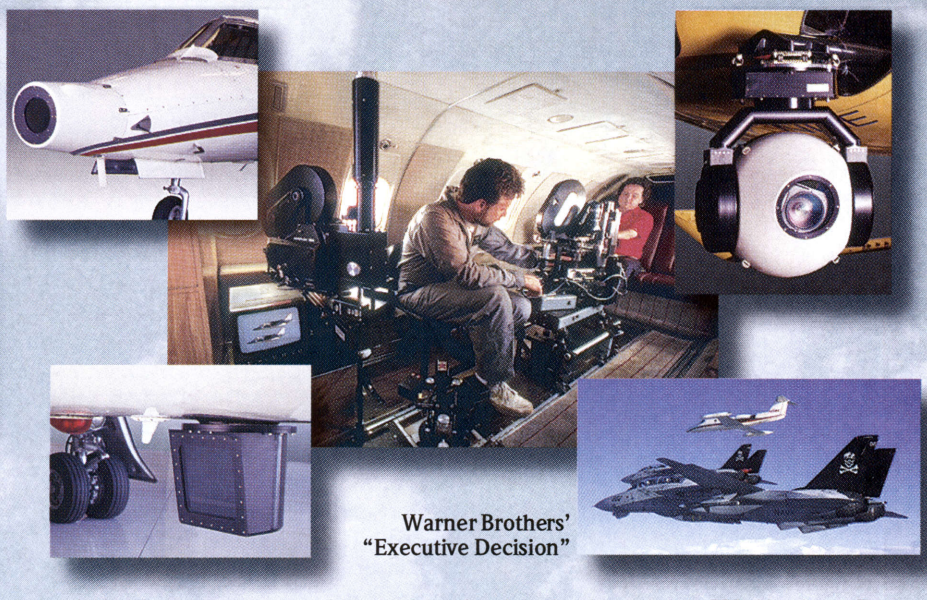
There are numerous advantages to using this type of system. Operators can set up an intricate camera maneuver using as many axes as can be accommodated by the motion-control equipment. For the cloud plate photography of *Air Force One,* pan and tilt were the only axes required to duplicate the camera motion filming the model aircraft on stage. Bill Tondreau wrote a special two-letter software command to control the large miniature of the presidential aircraft suspended from wires on the Van Nuys stage. (This, incidentally, turned out to be the same 747 model used in *Turbulence,* repainted to resemble the President's jet). Both the motion-control equipment on stage and aboard the Lear jet were finely calibrated in units of degrees, which could then be repeated to perform the same movements for each different foreground, background, blue- or greenscreen shot, or miniature pass. The theory is similar to what Boss had accomplished a year ago with actor Michael Keaton on Columbia Pictures' *Multiplicity* (see *AC* July 1996), wherein the same move was incorporated to film the same actor at different places on the set. The various takes were later digitally composited to show multiple images of the identical performer occupying various areas of the shot.

In addition, the *Air Force One* team could later export these moves as ASCII text files to any other motion-control or CGI computer system, so that computer-generated images could be added using these pre-calibrated number figures to place the three-dimensional virtual object (in this case, a jet fighter) in the correct frame position. By the same token, complicated animatic virtual moves created on the SGI computer could be imported from ASCII file format to a motion-control Kuper move file using the "merge file" option,

Wolfe Air Gets Dean Cundey's Career "Off The Ground."



Dean Cundey, D.P., *Jurassic Park, Back To The Future, Who Framed Roger Rabbit?, Death Becomes Her, Hook* and *Apollo 13*



Warner Brothers' "Executive Decision"

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and later duplicated by the Vectorvision equipment to perform an identical move in a real-time exterior cloud environment, photographed through the domed port extending from the jet fuselage. Files were merged with frame positions set at "shutter closed position" (not the open "blur" position used by CGI) so that cloud plates would equal the move positions originally shot on stage. Using the "synthetic axes" option of the Kuper motion-control system, pan and tilt camera moves could be made to rotate exactly around the nodal point of any given camera lens — a very useful feature when executing a move that utilizes a complex snorkel lens arrangement.

Before the Vectorvision could be mounted in the Lear, special modifications had to be implemented to accommodate the motion-control camera. First, Richard Edlund's own Fries Mitchell 35mm camera was mounted on a standard Arri dovetail plate. A large 4.6-amp stepper motor was attached to the camera's drive shaft. Smaller single-stack steppers for pan, tilt and roll were added by Nettmann's crew, although a moving roll was never called for in the shot list. (In the air, the Vectorvision was positioned manually for the proper degree of roll, and then simply locked off.)

Next, postproduction supervisor Chris Edwards and I (acting as motion-control operator) calibrated the motors in degrees to match the frame-per-frame move positions of the text file. We calibrated pan by spinning it 360 degrees around and using the autocalibrate function in the Kuper jogbox software. Tilt was more difficult, as the total plus-and-minus range of travel was a mere 60 degrees. Physical marks were taped on the wall to correspond with the lens viewing system's cross-hair marks and degrees were triangulated using trigonometric formulas. The required number of pulses to move the tilt one degree was initially determined. This then needed to be cross-checked at a larger figure of +30 degrees to see if there was any deviation. Software limits were placed on the tilt so as not to crash the prism in its specified area of travel. Also, a spring-loaded drive system for tilt, combined with anti-backlash O-ring rubber bands for pan and roll, was placed around the gears to prevent slop and make the motion more repeatable. As an added precaution, a backlash compensation command was added before shooting to ensure that the pan and tilt motors were poised and enabled in the direction of travel.

Bob Nettmann and Vectorvision assistant Kent Hughes then mounted the Vectorvision rig on its side, adding a sliding brass weight threaded on a long bolt to compensate for the Fries' off-balance characteristics (caused by the camera's 400' magazine and heavy stepper-drive motor). This was an important step to ensure that the periscope assembly panned smoothly around its center of gravity, since the extreme G-forces introduced during flight might cause an off-balance camera to whip around the flight cabin or upset the continuity of the move. A long, thin rubber tube was draped down the lens relay to the port window below the fuselage. This enabled nitrogen from a tank set at 100psi inside the aircraft to be sprayed over the lens, since high-altitude fogging becomes a problem due to moisture condensation from warm temperatures inside the aircraft meeting the cold air outside. If the videotap displayed a fogged image, nitrogen was blasted three times before the camera rolled to clear the lens.

Zero home position fine marks were physically labeled on the motors' flywheels, and coarse marks were labeled on the Vectorvision's metal. Since a motor stall might be difficult to check during flight, a visual home setting using the camera viewfinder's cross-hairs was also predetermined. This corresponded with the tip of the Lear's tail fin, which was located straight-on from the lens when the dome covering faced the rear of the aircraft. During liftoff and landing, I always homed the lens to this position to prevent any debris on the runway from striking the glass.

The focus was preset at ground level for 100'; the high lens

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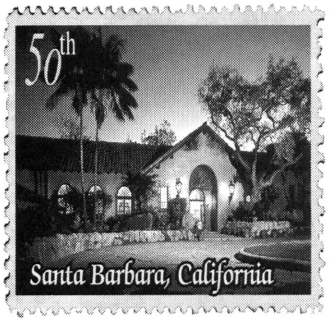

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stop carried the depth of field to infinity. The effective focal length of the zoom lens was also set manually and locked off in a static position to correspond with the same lens viewing angle used on stage or in the CGI simulation. The Vectorvision zoom offers a 30mm to 106mm effective focal length field of view for a standard 35mm Academy frame. For Boss' work, a ½ conversion was figured in the lens calculation to obtain this effective focal length.

The Vectorvision can accommodate larger film formats as well, such as the VistaVision 8-perf frame size used in *Eraser* and *Forever Young*. But for *Air Force One*, only standard 4-perf 35mm was required using the Fries reflex camera. "I think Richard felt he could do everything he wanted [digitally] using only 4-perf for the background plates," recalls Nettmann.

With spare motors, cables, nitrogen and a stockpile of Dramamine, our first flight proceeded without a hitch. In addition to the pilot and co-pilot, the already extremely cramped quarters included the Vectorvision and motion control equipment (which hogged most of the space), visual effects supervisors Richard Edlund and Jamie Price, plate work director of photography Bob Mehnert, and myself as motion-control camera operator. Weight had to be kept to a minimum, so a Kuper laptop computer with LCD screen was selected for the job.

We fortunately did not have to fly very far looking for clouds, since the shoot coincided with the stormy January weather then assaulting Southern California. We flew for three hours and were able to film most of the 29 shots scheduled. Ten 400' magazines had been pre-loaded with daylight color negative before takeoff. Bob Mehnert took spot and incident meter readings from the aircraft window, and the lens stop was set manually, usually from f8 to f16, combined with a .30 or .60 ND filter for the daylight load. We were forced to communicate through headsets in order to hear ourselves above the loud scream of the jet engines. Chatter dropped to a minimum during the tricky takeoffs and landings.

As we only dealt with short 400' loads, the camera had to be reloaded three to four times during each flight. This proved to be difficult when the Lear was pulling two to three Gs to place itself over a decent cloud bank. We soon found that while in the air, movements were best kept slow and to a minimum, as your weight seems to increase and your brain loses orientation when you aren't looking out a window. For instance, if you drop a pen during a climb and then reach for it quickly as you would on terra firma, you may encounter a dizziness akin to vertigo.

For the most part, the pilots held the jet steady during actual takes — nose up when traveling through clouds in order to see more sky and less plane. The pilots also aligned the jet for the correct sun angle, based on Richard's and Jamie's instructions studying video transfers of scenes recorded earlier on stage. Selected plates would later be printed down to resemble a night sky for certain scenes. Surprisingly, we encountered little turbulence above 20,000', in spite of the storm clouds over Los Angeles. Cloud cover proved necessary not only because it looked pretty, but also to ensure that no discernible landmarks could be spied by audiences. Normally, Nettmann must fly as far north as Seattle to obtain interesting cloud formations.

Despite all of our efforts, dailies betrayed a very slight pulsating flicker caused by minute variations in shutter angle between frames at 24 frames per second. An inverter changed the Lear's DC battery power to the 110-volt AC necessary for the motion-control computer and Point Blank motor drivers. (Vectorvision normally requires only operator-assisted pan, tilt, roll, zoom and focus.) A strobe certified that the camera drive was not constant at 24 fps. Since we weren't actually repeating passes in the air (only syncing them to what had been previously shot on stage), frame-to-frame accuracy was not as critical as it would be if quick pans began or ended with the shutter at a different position-angle in front of the film plane. We elected to replace the stepper mo-

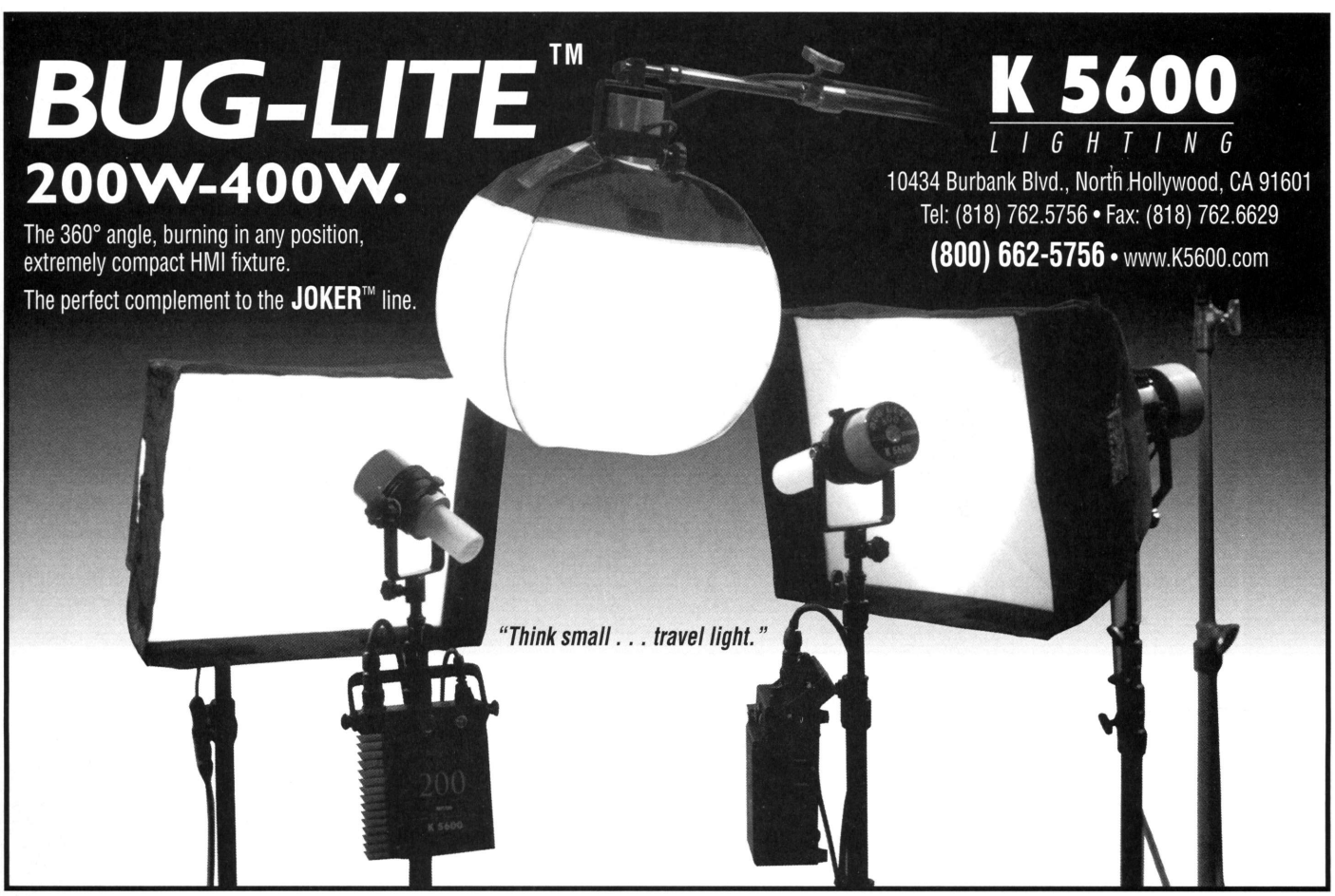
tor with a standard crystal Fries motor running off a 30-volt camera battery. This cleared up the problem immediately, working as a quick fix until Boss or Nettmann could sort out the problem with the inverter.

Electronics whiz Donny Sierer fitted the Fries with an LED bloop light inside the camera body between the lens and the mirror shutter. This "blooped" or effectively marked the first frame of the move with a red flare so that Boss' digital postproduction team could later synchronize the separate elements, such as the appropriate background plate with the correct foreground image frame number. The marker was spread over the entire frame or 360-degree shutter movement so it would not matter if the "wild" camera shutter was partially opened or closed for frame one. If the bloop fell over two frames, the brighter one would be selected. Obviously, detailed camera reports proved essential for syncing the right background move with its identical foreground one. Slating outside the aircraft is not possible with aerial systems.

For *Air Force One*, only the bottom port was put to use. Camera moves typically began slowly and gracefully; only once did the pan motor stall due to an extreme whip movement as it followed a jet fighter in combat. We corrected this by either shooting the move at 12fps (half speed), or extending the total move length by double, and later skip-framing in post.

"Most of the time the lower port is employed to look down on clouds or landscapes," said Nettmann. "However, the top port was used in *Executive Decision* when the camera had to travel right underneath the 747 for the air-to-air transfer. We also have a system as well for shooting 2 ¼ by 2 ¼ stills." Called Jet Stills 88, the system has been installed in Wolfe's aircraft by adding a second exterior port mounted forward of the Vectorvision. It incorporates a Hasselblad camera body located at floor level, but the rest of it is Nettmann's design. The system electronically controls 360-degree camera rotation, tilt, lens focus, shutter speed and f-stop. Like the Vectorvision, it enables one to have the lens right out in the slipstream, but the actual camera body lies inside the aircraft, allowing one to change mags and adjust focus safely. A clear, highly refined optical flat permits photos without unwanted reflections or distortion. Operators can choose between direct, through-the-lens viewing, or watch a video monitor.

"The business is changing very rapidly," admits Nettmann, "which is why Richard Edlund went this route. In the past, we would have gone up and shot a 747 in flight [as on *Executive Decision*], and done our maneuvers around it. This is the first time that we shot a large model aircraft in the studio and then married the movement around that model with the cloud plate, repeating the same camera move in the sky around the background. That's a first, I think, and that's how the industry's changing. We'll probably never go up and shoot an aircraft again for a feature film because of the new techniques of digital image manipulation." ◆



Du Maurier + Selznick + Hitchcock = *Rebecca*

Disparate elements combine to deliver a classic exercise in atmospheric suspense.

by George Turner

"I've a feeling that before the day is over someone is going to make use of that old-fashioned but somewhat expressive term *foul play*," drawls the inimitable George Sanders in David O. Selznick's production of *Rebecca*. With Alfred Hitchcock directing, of course, foul play could be expected.

Rebecca began in 1938 as a novel by Daphne du Maurier. The book captured the attention of Hitchcock, the British director who had built his reputation as the "master of suspense" with melodramas such as *The Man Who Knew Too Much* (1934) and *The 39 Steps* (1935). After glancing through galley proofs at Elstree Studio while directing *The Lady Vanishes* (1938), he considered buying the property, but decided that the price was too high.

Kay Brown, East Coast story editor for Selznick, sent a synopsis to her boss with the highest recommendation. After consulting with his resident story editor, Val Lewton, the producer acquired the film rights to du Maurier's book for a hefty $50,000.

The novel is told in the first person by an unnamed young woman, a shy paid companion to the gross Mrs. Van Hopper, who is on holiday in Monte Carlo. There, "I" meets moody Maxim de Winter, a wealthy English widower. They marry and return to his estate, Manderley, which seems haunted by

Standing at the entrance to Manderley are the butler, Robert (Philip Winter), Giles (Nigel Bruce), Max (Laurence Olivier), Beatrice (Gladys Cooper) and the second Mrs. de Winter (Joan Fontaine).

memories of the beautiful Rebecca, the first Mrs. de Winter, who supposedly drowned the previous year while boating alone. The new bride grows increasingly terrified of the housekeeper, Mrs. Danvers, whose abnormal devotion to Rebecca makes her hate her new mistress; she even tries to coax her to commit suicide. The discovery of Rebecca's corpse in her scuttled boat casts suspicion on Max, who had identified another body as Rebecca's. Max admits to his wife that he killed Rebecca when she boasted that she was pregnant by one of her lovers. A doctor reveals that Rebecca had learned that her supposed pregnancy was actually terminal cancer. The coroner rules death by suicide. Rebecca's lover, Favell, telephones the news to Danvers, who goes berserk and burns Manderley to the ground, dying with it. The de Winters find happiness elsewhere.

Although Selznick wanted to be faithful to the novel, the censors demanded that Max could not kill his wife without paying the penalty. Suicide was also frowned upon. After a hard-fought but futile battle, Selznick had to settle for Rebecca being accidentally killed when she falls while attacking Max.

Selznick, son of pioneer producer Lewis J. Selznick, had presided over many distinguished films at Paramount, RKO Radio and MGM. In 1936, he leased the RKO-Pathé Studio in Culver City, renamed it Selznick International Pictures, and bannered his credo: "In a Tradition of Quality." Built in 1919 by Thomas Ince, the studio had both modern and antiquated stages and shops, a colonial-style administration building and a 40-acre backlot. There Selznick produced such admirable films as *The Garden of Allah, A Star is Born, The Prisoner of Zenda, The Adventures of Tom Sawyer* and others. In 1938-39 he made the most popular movie in history, *Gone with the Wind*, a Herculean effort that left him exhausted and subject to wide mood swings. Selznick labored ever after in the shadow of *GWTW*, agonizingly aware that he would never surpass it. Of the 11 films that followed during his career, only *Rebecca* approached it in prestige or popularity.

Hitchcock had long fantasized about making pictures in the United States with famous stars. Through Selznick's agent brother, Myron, he negotiated a contract with Selznick effective July 14, 1938. Hitchcock's first assignment was to be *The Titanic*, but in September he was named to direct *Rebecca*. The teaming of the most autocratic of producers with the most independent of directors made head-butting a way of life for both. Somehow, from this monumental mismatch, a great movie emerged which exhibited the distinctive artistry of two very different men. It also showcased the work of an outstanding production crew and the finest work of a brilliant cast.

Du Maurier ranted that she hated Hitchcock's version of *Jamaica Inn* (1939) which reflected his cavalier attitude towards source material. Selznick asked her to write the screenplay, but she refused.

To Hitchcock, even an international best seller was nothing more than a springboard for his own ideas. "This is really a new departure for me," he said in the November 5, 1938 edition of *Film Weekly*.

Max rescues his new bride from the obnoxious Mrs. Van Hopper (Florence Bates).

"I shall treat this more or less as a horror film, building up my violent situations from incidents such as one in which the young wife innocently appears at the annual fancy-dress ball given by her husband in a frock identical with the one worn by his first wife a year previously."

Du Maurier needn't have worried: Selznick demanded that the novel be followed faithfully. When he saw the first treatment, which was prepared under Hitchcock's supervision by distinguished Scottish author Philip MacDonald and Hitchcock's former secretary, Joan Harrison, Selznick flew into a rage. In a 10-page letter dated June 12, 1939 (which can be found in *Memo from David O. Selznick* by Rudy Behlmer) he told Hitchcock he was "shocked and disappointed beyond words" at the "desecrations" of their "distorted and vulgarized version. . . We bought *Rebecca* and we intend to make *Rebecca*."

Hitchcock, Harrison and Michael Hogan quickly prepared a version that passed muster. Later, Selznick hired playwright Robert E. Sherwood to prepare the final script.

Selznick was again outraged when Henry Ginsberg, vice president and general manager, submitted a budget of $947,000, based upon the total estimates of all department heads. Calling it "a disgrace," Selznick declared that the head of any department that did not stay within a sensible budget "is going to be fired... If there is going to be any extravagance in our picture-making it is going to be indulged in by me personally to improve the quality of pictures, and I am not going to have it thrown away through sloppy management."

The casting of the lead roles proved difficult. Selznick had bought the property for Ronald Colman, whose contract for *The Prisoner of Zenda* called for a second picture. Colman, who likely would have been the perfect de Winter, balked because he thought his public wouldn't like him as a murderer, and because he feared that *Rebecca* would emerge as a "woman's picture." Hitchcock also tried vainly to convince Colman to take the part.

After considering such top stars as William Powell, Leslie Howard and Melvyn Douglas, Hitchcock and Selznick agreed upon Laurence Olivier. The British Shakespearean actor had just scored a hit as the brooding Heathcliff in Samuel Goldwyn's *Wuthering Heights,* and his asking price was $100,000 less than what MGM wanted for Powell, their first choice. Olivier was signed in June of 1939.

It happened that Olivier was the paramour of Vivien Leigh, who was finishing *Gone with the Wind.* She quickly began to badger Selznick for the role of the second Mrs. de Winter. She made a screen test with Olivier and was, Selznick noted, "terrible." After she and Olivier returned to London in midsummer, she made another test there and air-expressed it to Selznick.

Selznick wanted Hitchcock's former protégé from England, Nova Pilbeam, for the part. Hitchcock, who preferred an American star, finally talked Selznick out of it. Hitchcock, John Cromwell and Anthony Mann were directing tests of about 30 other actresses, with contract actor Alan Marshall standing in as de Winter. Some were impressive, particularly established stars Margaret Sullavan and Loretta Young, and a very young New York actress, Anne Baxter. George Cukor suggested Joan Fontaine, whose previous film roles had been unimpressive, and she made several tests.

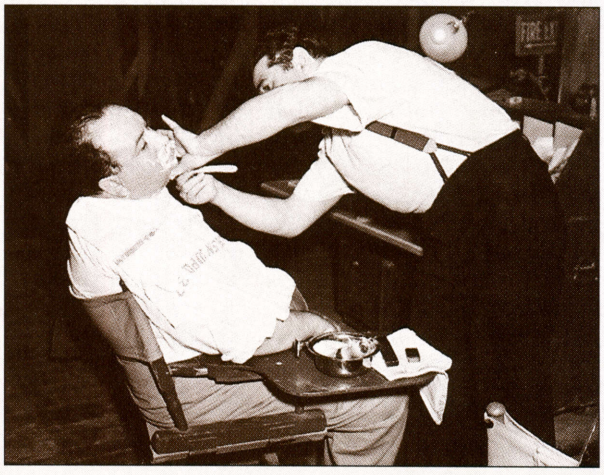
Selznick eventually decided that he wanted Fontaine's sister, Olivia de Havilland, for the role, but when de Havilland learned that Fontaine was being considered for the part, she refused to be tested.

By mid-August, the candidates had been narrowed to Sullavan, Hitchcock's choice; Fontaine, Selznick's choice; and Baxter, the staff's popular favorite. Selznick finally eliminated Sullavan with the line, "Imagine Margaret Sullavan being pushed around by Mrs. Danvers right up to the point of suicide!" Baxter was dismissed as being too young and too difficult to photograph. Over the Labor Day weekend, against the advice of almost everyone, Selznick decided to use Fontaine.

For the role of Mrs. Danvers, the choice was Judith Anderson, a haughty and demanding stage actress from Australia. The supporting cast could hardly be better. It is difficult to imagine anybody but George Sanders as Favell, the charming, lip-curling scoundrel. There is also the unforgettable Florence Bates as Mrs. Van Hopper, and such sturdy Britishers as Nigel Bruce, Gladys Cooper, Reginald Denny, C. Aubrey Smith and Leo G. Carroll.

During this time, contract cinematographer Harry Stradling Sr., ASC had started *Intermezzo* for Selznick. The producer was displeased with the close-ups of his new star from Sweden, Ingrid Bergman, and replaced Stradling with Gregg Toland, ASC. After being assigned to *Rebecca,* Stradling sent Selznick a teletype asking to be released from his contract because "with the mental strain of wondering whether I was satisfying you and with thoughts of being taken off the picture, I honestly don't feel I could do justice to you and your organization in making *Rebecca.*"

Selznick ordered Ginsberg to get Toland, whom he felt would be "worth his weight in gold to *Rebecca.* I will be agreeable to paying a very fancy bonus for having him on the picture. I don't feel there is any other cameraman in town comparable with him for this job — and while there may be other men of equal ability, they would take twice as long to get the same result."



Below: ***The suave but dastardly Favell (George Sanders) makes a crucial call as a familiar-looking pedestrian awaits his turn in the booth.*** **Right:** ***Hitchcock has a close shave on the set of*** **Rebecca.**

Toland wasn't available, but his long-time mentor, George Barnes, ASC, was. He brought to the picture a wealth of artistry and experience that assured a first-rate job — and he worked fast.

The sets for *Gone with the Wind* were still in use when construction began on the 40 settings Lyle Wheeler designed for *Rebecca.* As soon as a *GWTW* set was struck, a *Rebecca* set grew in its place. Twenty-five were interiors, mostly of Manderley; others included the boathouse, the coroner's courtroom, the doctor's office and an inn. Hitchcock and Selznick were in agreement that Manderley was the co-star of the show. Hitchcock knew how he wanted the great house to appear, and had several historic English mansions photographed, but Selznick didn't like them. It was left to Wheeler to create the epitome of settings for

Gothic romance, with a cavernous main hall, ornate rooms, gigantic fireplaces, towering staircases, high doors and massive chandeliers.

On September 1, 1939, the German Army invaded Poland. England declared war on September 3. Hitchcock and his predominantly British players were tormented by fears about their families and friends. On September 8, in an atmosphere of gloom and anxiety, principal photography of *Rebecca* commenced. Production was budgeted for 36 days, but in two weeks the company was five days behind schedule.

Hitchcock, who now championed Fontaine, spent a lot of time coaching her. Already lacking self-confidence, she was particularly nervous because Olivier wanted to get rid of her. A product more of stage than screen, Olivier was driving both Hitchcock and Selznick to distraction with his habit of alternately slowing down action to make his role more showy, and then speaking very rapidly.

Hitchcock's *modus operandi* of "cutting in the camera" — by pre-planning his shots meticulously and shooting no coverage from other angles — was especially galling to Selznick. This, he told the director, was the most important of the "things about your method of shooting which I think you simply must correct." Hitchcock was horrified when he learned that assistant director Eric Stacey and continuity supervisor Lydia Schiller were reporting to Selznick everything that happened on the set. He made their lives miserable for the duration.

Elaborate special photographic effects played an important role in getting Manderley onto the screen. According to the action and mood of the moment, it had to be perceived variously as warm and friendly, cold and forbidding, lively and in ruins. It would be shown by day, by night, in rain, mist and in flames. Hitchcock, Wheeler, production manager Ray Klune and special effects director Jack Cosgrove, ASC wanted to film the exteriors by utilizing large miniatures in two different scales. Matching portions of the exterior, such as the entrance, would be built full-scale. It was difficult to convince Selznick to use miniatures, because he feared that they would look fake. Hitchcock, a master at staging complex miniature scenes, was confident the method would work.

The first miniature of Manderley, the mansion with adjacent landscaping and a sky-backing, almost filled a big, barnlike stage behind the administration building. A vestige of the silent films, the stage had never been soundproofed and was utilized mostly for special effects work. This model was used for close views, such as when a light is seen moving through the rooms and during the climactic fire, but there was not enough room on the stage to allow full shots of the building.

A second Manderley — half the size but surrounded by forest and including the winding road through the woods — was built on another stage. There Cosgrove filmed the superb visuals that open the film. The voice-over narration by the second Mrs. de Winter begins, "Last night I dreamt I went to Manderley again. It seemed to me I stood by the iron gate leading to the drive, and for awhile I could not

In Rebecca's room, Mrs. Danvers (Judith Anderson) tells Mrs. de Winter about her predecessor's great beauty.

enter, for the way was barred to me. Then, like all dreamers, I was possessed of a sudden with supernatural powers and passed like a spirit through the barrier before me. The drive wound away in front of me, twisting and turning as it had always done, but as I advanced I was aware that a change had come upon it. Nature had come into its own again, and, little by little, had encroached upon the drive with long tenacious fingers. On and on wound the poor thread that had once been our drive, and finally there was Manderley — Manderley, secretive and silent as it had always been, shining in the moonlight of my dream..."

As the camera weaves through tangles, mists and gusts to reveal at last the ruins of the estate, the spectator is drawn quickly into the heart of the story. It is one of the great openings to a film of mystery, comparable to the discovery of the fort manned by dead soldiers in *Beau Geste* [see *AC* June '97].

The dream trip dissolves into a turbulent sea and cliffs, where de Winter and his soon-to-be-second wife meet for the first time. The scenery was filmed along the rocky northern California coastline near Carmel by a second unit helmed by D. Ross Lederman, a hard-working director of "B" mysteries and Westerns at Columbia and Warners, and veteran cinematographer Archie Stout, ASC. Fontaine and Olivier were doubled at the location for the long shots. Everyone in the unit was later subject to a three-day hospitalization for poison ivy infections.

The stars played several scenes with rear-projected Carmel footage. For one complex clifftop scene, they were placed in the middle distance of the landscape via a perfect split-screen shot composited by optical effects cinematographer Clarence W. D. Slifer, ASC in his lab on Stage Five. Other second-unit images from the Del Monte area provided backgrounds for scenes in the estate grounds. A third unit, under the supervision of Stacey and Lloyd Knechtel, ASC, filmed beach exteriors at Santa Catalina Island.

Using a new aerial-image printer he had designed with Don Musgrave and Oskar Jarosch, Slifer also composited numerous matte shots painted by Al Simpson. Slifer furnished Wheeler with 11" x 14" enlargements of the matted shots, upon which Wheeler or one of his staff sketched in the effects desired. The matte artist used these as guides; upper walls, ceilings and chandeliers were introduced into interiors, and

architectural features were added to partial exterior sets. Some of the flames in the film's climax were composited from shots made by Slifer during the burning of "Atlanta" in *GWTW.* A striking, much-emulated shot is a Danvers-eye-view of the burning ceiling crashing down.

Principal photography wrapped after 63 days on Monday, November 20 at 4 p.m., 26 days behind schedule. Three days were lost when Fontaine fell ill with influenza, followed by another three days due to a union "wildcat strike." The last scenes were retakes of Rebecca's burning bedroom, ending as the "R" on her nightgown case is devoured by flames. Selznick, who was constantly on the set to oversee every nuance, nixed the first staging for a variety of reasons; he felt that the room wasn't clearly recognizable as Rebecca's; that the lighting was unrealistic and not weird enough; that the "R" was not as meticulously placed as Danvers would have done it; that it was slow in catching fire; and that the flames failed to rise to create a "curtain of flames" for the end title.

With 216,000 feet of film to tinker with and a head full of ideas for new dialogue to be dubbed, Selznick took over. Some 30 scenes were scheduled for retakes. He borrowed German-born composer Franz Waxman from MGM, where he was finishing *The Philadelphia Story,* insisting that he compose the music while the picture was only roughly assembled and make it fit at the last moment. Most of the players were called back for dubbing sessions. Selznick was frustrated in his attempts to slow down Olivier's clipped speech with dubbing.

Eventually, Waxman got to meld his fine score into the finished picture, building it upon a seductively erotic but somehow sinister melody reminiscent of his theme for *Bride of Frankenstein.* After Waxman left, Selznick removed his music for one sequence and substituted some Max Steiner music from *A Star is Born,* infuriating both composers.

With a final cost of $1,288,000, *Rebecca* emerged as a marvelous blending of Hitchcock inventiveness and Selznick opulence. Fontaine's sensitive performance made her a major star overnight. Convincingly repressed and furtive during most of the film, she brings equal conviction to the later scenes in which she rises defiantly to her husband's defense. Olivier earned wide acclaim for his strong portrayal of dignified but vulnerable nobility. Anderson, toning down her stage technique to the subtle needs of the camera, projects malevolence superbly. The other players, especially Sanders and Bates, are also memorable.

George Barnes' cinematography is characteristically first-rate. Avoiding the use of extreme angles, short lenses and fantasy lighting — all stocks-in-trade of mystery melodrama — the cameraman's work conveys mood largely through subtle shifts in lighting and composition.

"Well, it's not a Hitchcock picture," the director himself remarked in 1966 to François Truffaut, as quoted in the latter's book *Hitchcock.* "The fact is, the story lacks humor." Even so, Hitchcockian "touches" are abundant, and while there are no belly laughs, there are chuckles when George Sanders, Nigel Bruce, Gladys Cooper are onscreen. Audiences react audibly when the uncouth Van Hopper snuffs out her cigarette in a jar of cleansing cream. "Most girls would give their eyes to see Monte [Carlo]," she tells Max, who asks, "Wouldn't that rather defeat the purpose?" The handling of Mrs. Danvers is pure Hitchcock: she is seldom shown moving, but suddenly appears in the frame when least expected — cold, unblinking, dressed in black, wearing an upswept hairdo that makes her look a bit top-heavy, cocking her head like a bird of prey. When she speaks of Rebecca she seems to lapse into dementia.

Both the producer and director, jealous of each other's trespasses, had misgivings about *Rebecca.* They needn't have worried: following its gala premiere at Radio City Music Hall on March 28, 1940, it became a popular, critical and financial hit. It won the Academy Award as Best Picture of 1940 (besting Hitchcock's own *Foreign Correspondent,* among other nominated films), brought an Oscar to Barnes (who had been nominated twice previously, and would be again twice after), and earned nominations for Olivier, Fontaine, Anderson, Hitchcock, Sherwood and Harrison, Wheeler, Kern, Waxman, Cosgrove and Arthur Johns (sound effects).

Even today, *Rebecca* is a hit show. As Hitchcock told Truffaut, "It has stood up quite well over the years. I don't know why." ◆

Credits

The Selznick Studio *presents its production of* Daphne du Maurier's *celebrated novel; released through* United Artists; *produced by* David O. Selznick; *directed by* Alfred Hitchcock; *screenplay by* Robert E. Sherwood *and* Joan Harrison; *adaptation by* Philip MacDonald *and* Michael Hogan; *director of photography,* George Barnes, ASC; *music by* Franz Waxman; *music associate,* Lou Forbes; *art direction,* Lyle Wheeler; *special effects,* Jack Cosgrove, ASC; *interiors designed by* Joseph B. Platt; *interior decorations,* Howard Bristol; *supervising film editor,* Hal C. Kern; *associate film editor,* James E. Newcom; *scenario assistant,* Barbara Keon; *sound recording,* Jack Noyes; *assistant directors,* Edmond Bernoudy, Eric Stacey *and* Ridgeway Callow; *production manager,* Ray Klune; *second-unit directors,* D. Ross Lederman, Eric Stacey; *second-unit photography,* Archie J. Stout, ASC, Lloyd Knechtel, ASC; *casting test directors,* John Cromwell, Anthony Mann; *gowns,* Irene; *makeup artists,* Monty Westmore, Ben Nye, Frank Westmore; *hair stylist,* Hazel Rogers; *sound dubbing,* Arthur Johns, Gordon E. Sawyer *at* Samuel Goldwyn Studio; *optical effects,* Clarence W.D. Slifer, ASC; *matte artist,* Albert Maxwell Simpson; *executive assistant to producer,* Marcello Rabwin; *camera operators,* Vincent Farrar, Arthur Arling, Irving Rosenberg; *assistant cameramen,* John F. Warren, Harry Wolf; *technical advisor,* W. A. Bagley; *script supervisor,* Lydia Schiller; *script clerk,* Adele Cannon; *story editors,* Kay Brown *and* Val Lewton; *construction supervisor,* Harold Fenton; *still photographer,* Fred Parrish; Western Electric *recording. Running time, 130 minutes. Released May 12, 1940.*

Maxim de Winter, Laurence Olivier; *Mrs. de Winter,* Joan Fontaine; *Jack Favell,* George Sanders; *Mrs. Danvers,* Judith Anderson; *Beatrice Lacy,* Gladys Cooper; *Major Giles Lacy,* Nigel Bruce; *Frank Crawley,* Reginald Denny; *Colonel Julyan,* C. Aubrey Smith; *Coroner,* Melville Cooper; *Mrs. Van Hopper,* Florence Bates; *Dr. Baker,* Leo G. Carroll; *Frith,* Edward Fielding; *Robert,* Philip Winter; *Chalcroft,* Forrester Harvey; *Ben,* Leonard Carey; *Tabb,* Lumsden Hare; *Policeman,* Billy Bevan; *Chauffeur,* Leyland Hodgson; *Desk Clerk,* Egon Brecher; *Hotel Manager,* Gino Corrado; *Pedestrian,* Alfred Hitchcock.

Parts of this article were based on conversations with the late Arthur Arling, ASC; Clarence W. D. Slifer, ASC; Lyle Wheeler; and Harry Wolf, ASC.

Bungee-Jumping Chip Dippers

by Mary Hardesty

It's not often that favorite pastimes can have a direct impact on one's work, but director/cinematographer Eric Saarinen of Plum Productions claims that this was indeed the case on a recent commercial he did for Tostitos corn chips. The 30-second spot, "Blimp," naturally opens on an airship emblazoned with the Tostitos logo, flying above a crowded football stadium. Inside the gondola, comedian Chris Elliott is strapped into a harness, while below, officials scurry to lay out a giant bullseye on the field. A stewardess slips a Tostitos chip into Elliott's clenched teeth; he steels his nerve and jumps out, with only a slim bungee cord to protect him from the effects of gravity. After plummeting hundreds of feet, Elliott comes to a graceful pause just inches above the turf and a jar of Tostitos salsa. He has just enough time to wink at the audience and dip his chip before the bungee snaps him back to the blimp.

"It certainly paid off that I love to watch football and fly planes," says Saarinen, a UCLA film school graduate who worked his way up through the documentary film ranks before starting his own commercial house with partner Chuck Sloan 10 years ago. "I knew from watching television that Jack Murphy Stadium in San Diego looked spectacular at night from the air, and my experience as a pilot helped me in dealing with the FAA to get a lower clearance for our camera blimp."

To pull off the death-defying bungee-jump illusion, Saarinen relied on a cleverly conceived combination of in-camera and digital effects. The process of making the situation believable began with finding the right blimp. "It had to be big enough to look as though it could hold a party inside; a 100-foot blimp would have been too small," explains the director. "There are only about five blimps available for a shoot like this, and only one without writing on it. We flew it down to the stadium and bounced the stadium's lights off of thirty 20' x 20's on the ground to light the blimp. I'm sure we got another half stop out of that trick. We also passed large searchlights over the blimp and the stunt man as he jumped. Because it was foggy, we had good shafts of light coming up from the arcs."

Special effects consultant Nick Piper supervised the placement of "target" reference marks on the blimp and stadium floor to make it easier to digitally add the Tostitos logo and stadium bullseye in post.

To achieve the effect of a blimp actually flying over a game, Saarinen shot the stadium from both the air and ground, first with people and then empty. Because FAA flight ordinances precluded flying low over a stadium while people were in the stands, he scheduled the shoot for a time when it was not in use and got special permission to place 100 extras in the seats. The small crowd was then digitally cloned in post to fill the stadium.

Saarinen filmed the bungee-jumping shots inside a football stadium at a junior college in Long Beach, California. A gymnast standing in for Elliott bungee-jumped from the top of a 275' construction crane. His performance was filmed from below with a Wescam mounted to an Akela crane positioned 45' in the air, and then from above via a helicopter. Hans Bjerno served as the Wescam operator on both setups. The helicopter view was later composited with an aerial shot of the stadium to make it appear as though the jump was from a much higher altitude. In post, the gymnast's face was replaced with Elliott's, the stage shots were superimposed onto the location shots, and the Tostitos logo was added to the blimp.

Believing himself to be the first to put a Wescam mounted with an 11:1 Primo zoom on an Akela crane, Saarinen says of the combination, "I don't think

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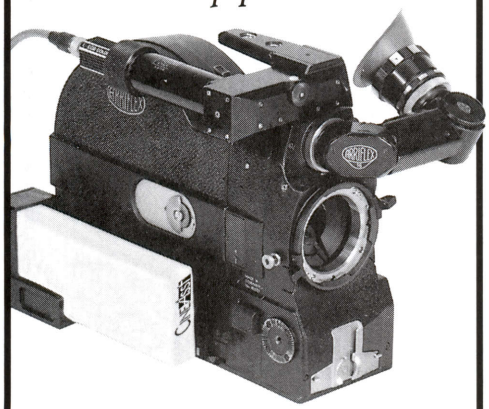
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the 11:1 is sharper than the new Angenieux HR, but I was trying to maintain lens consistency between the long and short Primo zooms, and it gave us the most focal-length range."

Kodak's new Vision 500T 5279 stock was substituted for 5298 midway through the shoot. "I've found that 98 doesn't pull mattes very well, so we switched to the Vision stock," Saarinen explains. "That turned out to be a real godsend for our night shots and bluescreen work, and it matched the 98 well enough. We had to go with 98 at Jack Murphy Stadium because there wasn't enough light to do it any other way. I used the Primo [T2.3] 17.5-75mm zoom on the Wescam for that location, because it's very fast."

Saarinen didn't have the time or money needed to relight the stadium, so he went with the existing stadium fixtures and several 12K HMIs. "I wanted to use a Musco, but there weren't any available. My gaffer, Jim Boyle, suggested using a Nightstick, which is a 100-foot crane with three 12Ks on it."

The director notes that whenever possible, he prefers to maintain creative flexibility in post by not using gels or filters during production.

While Saarinen and his first AC, Bruce McGregor, were shooting on location, production designer Penn Smith was busy building a fake blimp cabin — complete with propellers, glass windows and decorated interior — capable of housing 20 partiers inside. "We asked for a 36-foot-high stage at Raleigh Studios so we wouldn't have any height problems," Saarinen recalls. "We also had to be careful to light the prop blimp on stage to look the same as the real one, which meant we couldn't use real arc lights, because they would be too powerful when used that close up. We ended up substituting HMI follow spots for the arcs and added smoke [to bring out the shafts].

"In the mock-up blimp, I wanted to create a retro 1940s look with a warm, murky feeling. We mounted two rows of incandescent lights at the top of the cabin ceiling, dimmed them down to 80 volts and let the area in between the rows go dark. When the real blimp was up in the air, we lit it with PH211 bulbs on a super battery pack hooked up to a dimmer — turning the battery off between shoots."

When it comes to special effects, Saarinen believes that audiences are becoming more adept at discerning the difference between the real and digital worlds. "As a director, you have to go to greater lengths now to make things seem real," he concludes. "As a director of photography, I've always been interested in effects, so it was a natural evolution to go digital. Understanding the logic and knowing what you can and can't do in post is important. It's the bast way to put the most money in front of the camera." ◆

Spot: "Blimp"
Length: :30
Cinematographer/Director: Eric Saarinen
Client: Tostitos
Agency: BBDO New York
Production Company: Plum Productions, Santa Monica, CA

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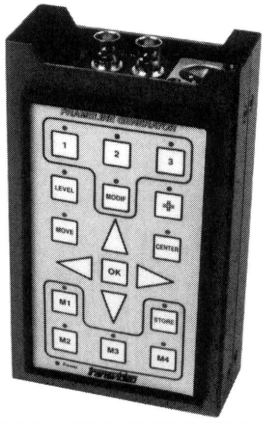

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New Products

compiled by Lisa Sibert

New Chimera Products

Chimera announces a new addition to their current line of F2 lightbanks designed for large set photography. The new Modular F2 is based on a welded section, truss-style design for ease of setup (within a two-hour timeframe) for the 10' x 30' module. It offers the ability to easily accept double the number of lighting instruments over the current design, and presents an increased number of options for rigging. The initial sizes offered are 10' x 20' (3 x 6m) and 10' x 30' (3 x 9m), and the units are supplied with their own shipping container. The new Modular F2 is designed to be able to make a 10' x 20' out of the modular 10' x 30' frame — providing that the additional exterior fabric body for the 10' x 20' (skin and interior baffle) is purchased.

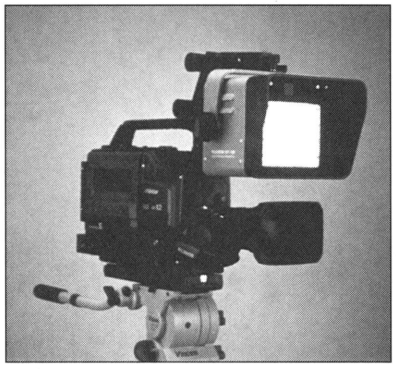
Chimera has also added the 2960 and 2962 Speed Rings for the Lowel Fren-L 650. The 2960 is designed for the Video Pro series of Lightbanks and the 2962 for the Daylite Jr. This new Ring is designed to adapt to the fixture in the same fashion as the Lowel barn doors. It attaches at the four points on the front accessory ring using ¼ turn fasteners.

Chimera, phone (888) 444-1812, Fax (303) 444-8303, e-mail: chimera@usa.net.

HDTV Lenses

Fujinon's new series of High Definition Television lenses includes a 10X, 14X, 20X, 24X and 66X, all with features to satisfy the excellent picture quality of HDTV.

Fujinon's HA10X5.2BEVM portable lens has a focal length of 5.2mm – 52 mm without extender, and 10.4mm – 104mm with its 2X extender deployed. It also features an iris range of F2.0 to F16, Minimum Object Distance (MOD) of 0.6 meters, horizontal field of view of 85 degrees, and a maximum relative aperture of F2.0 from 5.2mm to 37mm, and F2.5 at 52mm.



The HA14X8EVM lens features a focal length of 8mm–112mm without extender, and 16mm–224mm with its 2X extender deployed. The lens also provides a 61-degree horizontal field of view, one-meter MOD, iris range of F2.0 to F16, and a maximum relative aperture of F2.0 from 8mm to 89.6mm, and F2.5 at 112mm.

The HA1420X7.5BEVM lens has a maximum relative aperture of F2.2 from 7.5 mm to 90 mm and F2.8 at 150 mm, iris range of F2.2 to F16, MOD of 1.2 meters, 65 degree horizontal field of view, and a focal length of 7.5 mm to 150 mm without extender, and 15 mm to 300 mm with its 2X extender.

Also being offered is the HA24X7BESM — a studio lens with a F1.5 to F16 iris range, 0.6 meter MOD, 68 degree horizontal field of view, 7mm–168 mm focal length, and a maximum relative aperture of F1.5 from 7mm to 120mm, and F2.1 at 168mm. This lens features an inner floating lens system to improve coma and field curvature.

Finally, the HA66X9.5ESM field lens features a focal length of 9.5mm–625mm without extender, and 19mm to 1,250mm with its 2X extender deployed. It also has an iris range of F2.2 to F16, MOD of 3.6 meters, horizontal field of view of 53 degrees, and a maximum relative aperture of F2.2 from 9.5mm to 404mm, and F3.4 at 625mm.

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The distances at which each pair of charts are placed, relative to the

camera, correspond to the near and far limits of the depth of field as calculated from the position of the central focus chart; these spans are spaced in increments that the cinematographer can see and understand.

Three sets of charts come with the system, enabling lenses from wide angle to long focus to be tested and compared. The dSam Depth of Field Test Chart provides accurate lens data for all cine formats, 16, 35 and 65mm, spherical and anamorphic, and also for video and still cameras.

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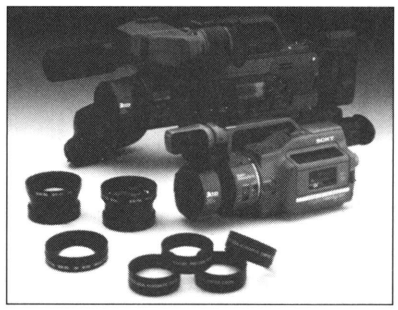
Lens Accessories for Digital Palmcorders

Century Precision Optics introduces the Digital Series, created especially for use with the new digital palmcorders with small lens front diameters, such as the Sony DCR-VX100 and DSR200 and the Panasonic AGE-Z1.

The Digital Series .65X Wide Angle Converter captures a wider angle



of view while maintaining full zoom capabilities. Adding it to the front of a video zoom lens provides 35% more coverage when set to wide angle, telephoto, or any setting in between.

For wide angles when zooming is not needed, Century offers the Digital Series .6X Wide Angle Adapter. The lightweight .6X offers a 40% wider angle of view and minimal distortion.

Century's front-mounting Digital Series 2X Tele-Converter also provides greater telephoto reach. Attached to the front of a zoom lens, the Tele-Converter shifts the focal length range in the telephoto direction.

The Digital family also includes Achromatic Diopters (a.k.a. Macro Zoom Attachments), which provide maximum magnification and image clarity, offering greater close-up range while preserving a camcorder's zoom capabilities. Available in +1.0, +2.0, +4.0 and +7.0 magnifications, Digital Series achromatic Diopters are useful in still-to-video copystand work, as well as tabletop, miniature and flat field videography.

The Digital Series' Wide Angle Adapter, Wide Angle Converter, and Tele-Converter attach with a twist to the bayonet-style mount found on the lens fronts of the Sony DCR-VX100 and DSR200. The entire Digital Series is also available in a screw-on version with 58mm threads for use on the Panasonic AGE-Z1 and other small palmcorders and camcorders. Step-up rings are available to adapt the accessories to smaller lens fonts.

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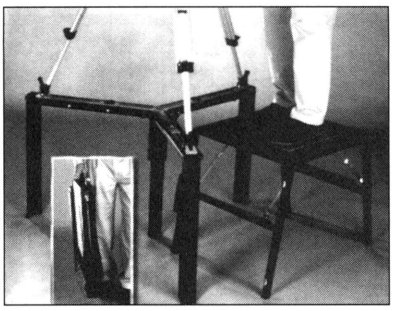


angle perspectives. Because the riser and platform section of the Spider Pod are separate units, movement from the videographer will not cause camera shake. The unit is made of strong, lightweight aluminum and features a three-inch channel to accommodate most every make of tripod spreader or feet. The Standing Platform is carpeted for operator comfort and can be situated next to the Tripod Riser for both ENG or studio configuration operation. The Tripod Riser and Standing Platform fold together into a 3.5" x 28" x 28" package for storage and travel.

The Kendallizer Corporation, (703) 212-8200.

New Videocassettes from Maxell

The Maxell Corporation of America Commercial Products Group has developed and introduced an advanced one-inch High Definition Television (HDTV) metal videocassette that meets the strict requirements of HDTV. Maxell's new videocassette is designed for use with digital VTRs that conform to BTA Hi-Vision Studio Signal Standard VTA S-001, which specifies a frequency band width of 30 MHz for full Hi-Vision signal recording at a total bit rate of 1.188 Gb/s.

Available in 24-, 33-, 48- and 64-minute recording times, the new videocassettes have a low error rate thanks to a high level C/N ratio, resulting in crystal-clear HDTV picture reproduction. The one-inch HDTV metal videocassettes also utilize a high-performance binder system and Ceramic Armor Metal Particle coating to produce a strong and durable magnetic layer.

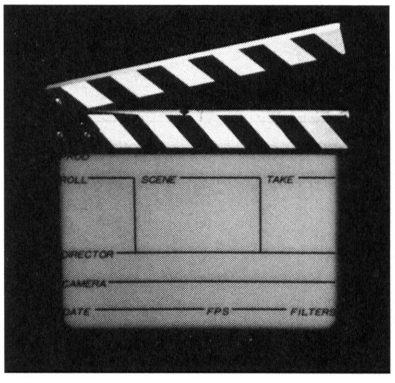
Additionally, an extremely thin ceramic layer encapsulates each magnetic particle, improving the physical characteristics and corrosion resistance of the one-inch HDTV metal videocassettes. All these features help the videocassettes display reliability and durability even under severe conditions such as electronic editing.

Maxell also announced recently a D-5 High Definition (HD) videocassette that meets the high density recording needs of the D-5 ½-inch component digital HD format.

Maxell's D-5 HD videocassettes have a new 0.1 μm diameter, ultra-fine Ceramic Armor Metal Particle coating, and a new calendering technology that smoothes the magnetic coating surface. To deliver ideal head-to-tape contact and superior durability, Maxell uses thin, highly rigid polyethylene terephthalate-based film material to create a 11 μm total thickness tape, assuring the same high reliability as standard tape thickness.

Uniform filler dispersion technology enables the tape to evenly clean the head surface without causing excessive wear. This technology maintains a perfect head surface condition over an extended period of time. The D-5 HD videocassettes are available in recording times of 33 and 63 minutes in M size, and 94 and 124 minutes in L size.

Maxell Corporation of America, (201) 794-5922, Fax (201) 796-8790, website at www.maxell.com.



Illumination Solutions

Precision Camera Supports introduces a solution to low-light shooting. The self-contained Illuminating Slate features a fully illuminated backlit board as thin as a regular slate. Activated by the opening and closing of the arm, it eliminates the need for flashlights or other small instruments in low-light situations. Powered by two commonly available 9V alkaline batteries, the slate requires no bulb replacement. It's made of weather-resistant rugged construction, is sold with a black Cordura Nylon bag, and

is available in pre-engraved format or black for custom engraving.

Also introduced is a new follow-focus knob with illuminated calibration disks for use in low-light situations. The illuminated lens control enables the camera assistant to see marks on the calibration disk in a variety of low-light situations, without use of flashlights or accessory lights. Powered by a single 9V alkaline battery, it is available in both Panavision and Arri configurations.

Precision Camera Supports, (818) 785-5681, Fax (818) 785-5683.

Portable Teleprompter

With news programs increasingly televising live, remote news programs, the broadcasting industry has seen an increased need for a lightweight teleprompter that camera operators can use to support newscasters. Fujinon's Broadcast & Communications Products Division has introduced a new LCD teleprompter for use on portable cameras.

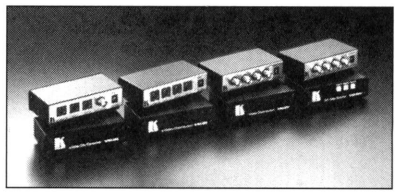
Designed as a peripheral for television broadcasting lenses, the WP-16B-04A can be fixed to a hand-held television camera due to its lightweight and compact size. The portable teleprompter features a six-inch liquid crystal display and a built-in image memory that can store up to 22 pages of text (44 pages in low-resolution mode), which translates into approximately six minutes of speech.

The WP-16B-04A can be controlled remotely by infrared or cable. It also has multiple choices for manuscript display, including instant input from a personal computer or handheld television camera. As an optional accessory, a half-mirror can be attached to the teleprompter for operation similar to that of a studio teleprompter.

Fujinon Inc., (201) 633-5600, Fax (201) 533-5216.

Compact Distribution Amplifiers

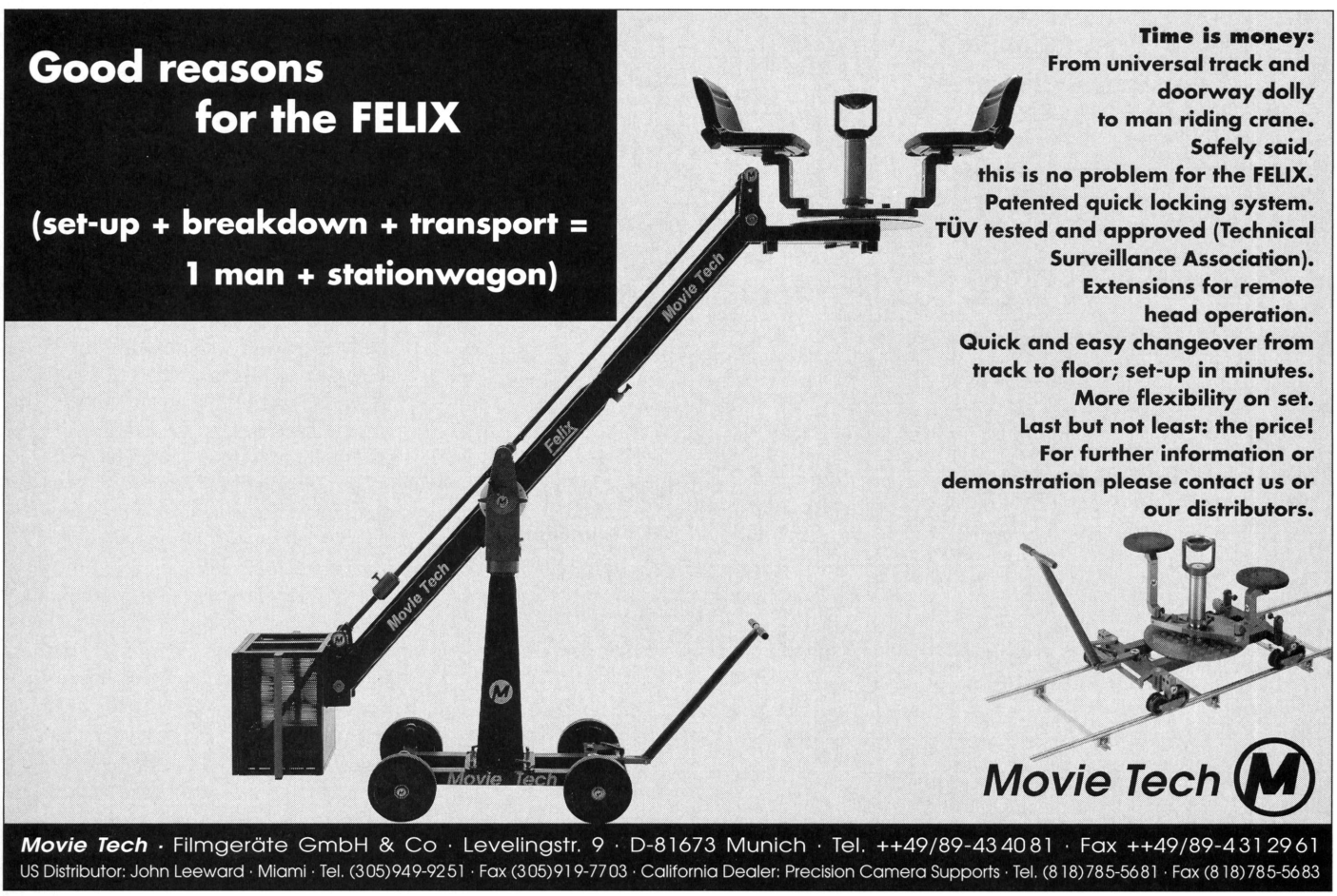
Kramer Electronics has introduced the VM-3 series of high-quality distribution amplifiers in housings so small they can fit in a tool box or even a pocket. In addition to the compact size, all the distribution amplifiers have a wide range of features, making them ideal for use in the field as well as in the studio.



Two video distribution amplifiers — the VM-3V and VM-3S (for s video) — are in the series. They split a single input source into three identical outputs with no discernible signal degradation. Both have a high bandwidth that exceeds 60 MHz and have signal-to-noise ratio of better than 70 dB. Neither consumes much DC power and operate on a 12 VDC power source. For field use, the amplifiers can run on a 9V battery for several hours.

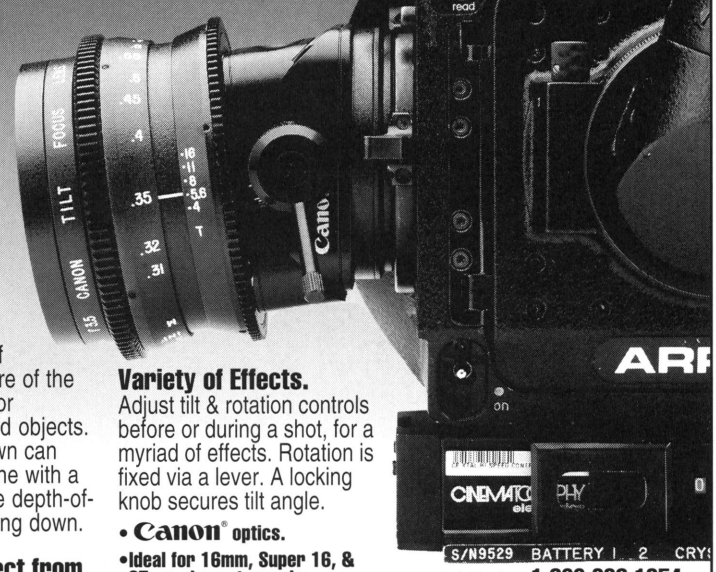
In addition to offering all of the same features as the VM-3S, the VM-3C also has a Composite video output. This additional capability allows the VM-3C to be used as a Y/C to Composite transcoder and can monitor Y/C signals through a Composite monitor.

The VM-3D measures only 11.7W x 6D x 3.2H (cm), and has built-in Y/C delay correction and maximal luminance bandwidth of 10 MHz. The VM-3D



Tilt, Focus, & Shoot.

Century's new 24mm (T4), 45mm (T2.8), & 90mm (T2.8) Tilt-Focus primes provide 360° of rotation & 8° of tilt in any direction.



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Kramer Electronics, (888) 303-5600, E-mail: kramerel@netvision.net.il.

New KATA Products

KATA has added some new design features to its line of professional soft bags and cases. To help find equipment more easily, sunshine yellow Cordura naturally illuminates the interior of every new KATA bag. Matching yellow zipper pulls enable the bag's zippers to be found quickly even on a darkened set. Hook and loop material in contrasting colors (a black hook and loop with a yellow interior panel, and vice versa) also aids in keeping the bag's contents well-organized.

KATA has also introduced a new Rain Cover that slips quickly over a video camera to protect it from sudden showers. The Rain Cover is fabricated from weatherproof polypropylene with a clear plastic panel on the camera's control side. The cover is secured with a quick pull of the fore and aft drawstrings.

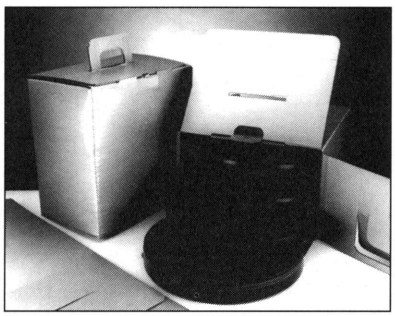
Hook and loop seams at the top and bottom provide easy access. The top seam accommodates a camera light, forming a snug seal around its base to keep the camera safe and dry. The Rain Cover features a polypropylene hood to shield the lens, and a flexible sleeve with a strong elastic cuff to protect the viewfinder. Sunshine yellow accents — pull tabs, seam trim, drawstrings and lens hood — aid in installing and removing the Rain Cover in dim light.

KATA USA, (805) 520-7342, E-mail: katausa@aol.com.

Flexdrop

Photoflex Inc. introduces Flexdrop, a collapsible background scene made for digital knock-outs and image compositing. It has a metal frame that collapses easily for space conservation and portability. The Flexdrop is available in five colors: blue, green, gray, black and white. It is 5' x 7' in size, collapses down to 28" and comes in a zippered carry bag.

Photoflex, (800) 486-2674, Fax (408) 454-9600.



Film Transport Box

The Film Tote, a new film transport box from Technology Container, is constructed from lightweight corrugated plastic with a double-reinforced bottom. Featuring a carrying handle and clasp to eliminate straps, this water-resistant film box sets up instantly, without glue or tape.

Available for handling four or five 14" diameter reels, the Film Tote provides easy access to the reels and can be security sealed. Offered in a variety of colors, these boxes can be printed in two colors and stored flat to save space.

Technology Container Corporation, (508) 845-6333, Fax (508) 845-6367.

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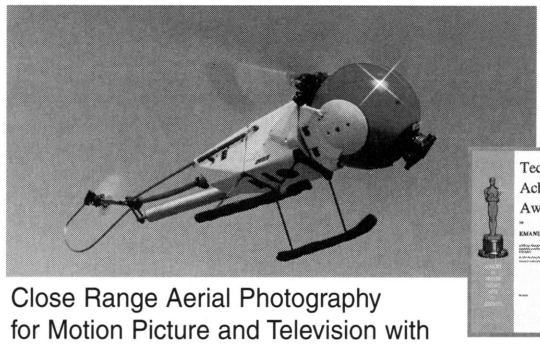

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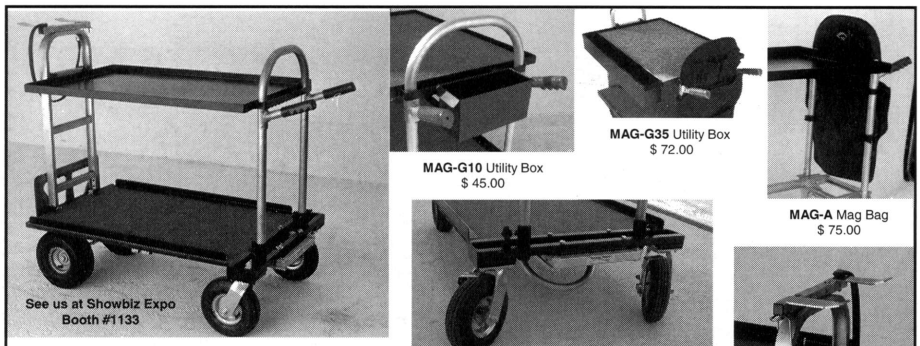

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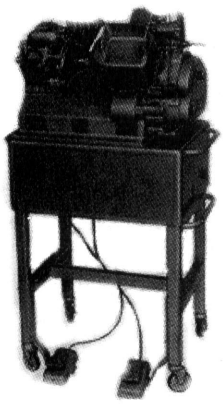

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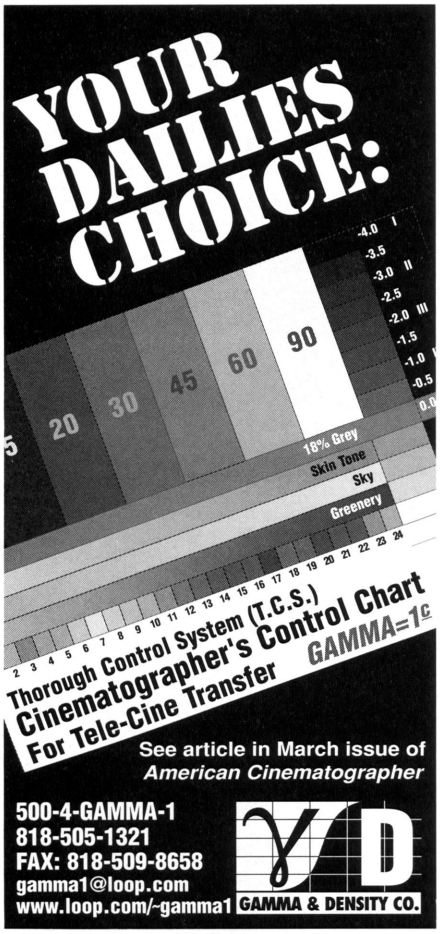

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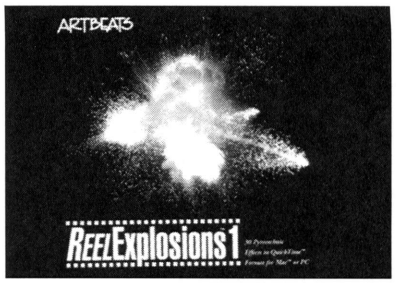


CD-ROMS: REEL Fire includes fireworks, smoke, torches, full-frame fires, half-frame fires and many more incendiary effects; REEL Explosions contain a wide variety of explosive effects including zero-gravity explosions, explosions within frames, full-frame explosions and fireballs.

Both CDs contain more than 30 broadcast quality, royalty-free sequences in QuickTime format within images digitized from 35mm film. The typical REEL Explosions sequence is approximately four seconds and the typical REEL Fire clip is seven seconds. The REEL Fire clips provide unlimited seamless looping. Videotapes of the clips are available to the purchasers of the CD-ROMs.

Most of the effects in REEL Fire and REEL Explosions were created by Robby Knott, who has served as a special effects artist on such films as *Dances with Wolves*, *Field of Dreams* and *Dante's Peak* (second unit).

In both applications the format images are provided as high-resolution 720 x 486 pixel QuickTime movies for import into most popular video-editing programs. The images are JPEG compressed with a quality setting of 95. Most explosions include mattes so that users can composite them with other footage. Use of the clips requires editing software that can import QuickTime format files and systems with 100 MB of available hard disk space.

Artbeats, (541) 863-4429, (541) 863-4547, e-mail: facts@artbeats.com.

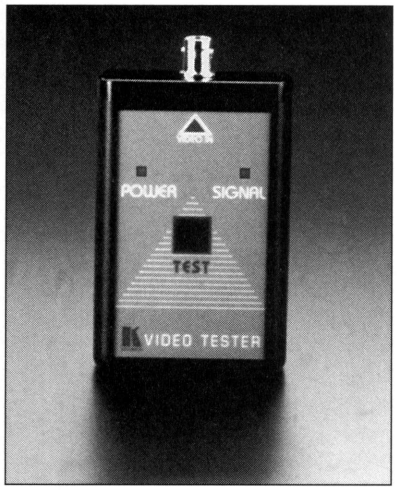
Mini Video Tester

Kramer Electronics introduces the VideoTester, a pocket-sized video signal tester that makes field signal testing easier and more convenient. The patent-pending unit eliminates the need to carry an oscilloscope, vectorscope or waveform monitor to trace and rectify bad video connections, cable breaks or faulty sources that can de-

stroy a bad video signal.

Indispensable for field work, Kramer's battery-operated device comes in a beeper-type enclosure with a pocket clip. Along with its compact size and light weight (120 grams), the unit can run for three continuous hours from a 9V battery.

With the feature for absolute video signal detection, this tester can trace missing signals, distinguish be-



tween accepted and jittery (VCR-sourced) signals, and can identify the presence of good signals by pressing one touch switch. It also checks for sync and odd/even data in the signal, and isn't triggered by noise, hum or even a 15 kHz non-video source.

The unit has two LEDs, a red power indicator and a green signal indicator. During testing, an unlit green LED indicates a missing signal, irregular flashing signifies a jittery signal, and a continuously lit or regular flashing represents a standard video signal.

Kramer Products, (888) 303-5600. ◆

Those wishing to submit releases for the New Products *column should address them to* AC *in care of Andrew Thompson, Assistant Editor, P.O. Box 2230, Hollywood, CA 90028. Releases should be concise (350–650 words) and any accompanying illustration should be submitted* only *in the form of a black-and-white still photograph.*

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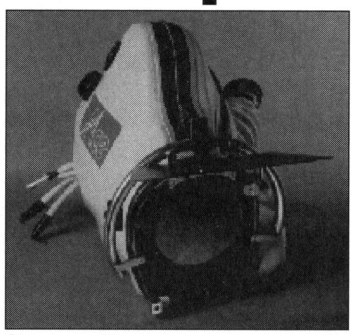

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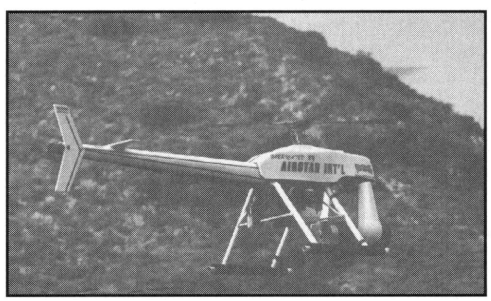

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Is Boston the Next Boom-Town for Indie Film?

by Eric Rudolph

Does an abundance of film schools eventually lead to a thriving independent film scene? One might conclude so by using Boston as a case study. The northeastern metropolis, with film departments in most of its approximately 100 colleges and universities, has become the latest hotbed for indie filmmaking.

Boston has long been known as a center for such notably iconoclastic documentarians as Frederick Wiseman (*Titicut Follies*; *High School*), Ross McElwee (*Sherman's March*; *Six O'Clock News*) and Errol Morris (*The Thin Blue Line*; *Fast, Cheap & Out of Control*). But lately, the city has become a haven for aspiring directors ready to max out credit cards and form limited partnerships to finance feature films.

> "People have come to realize that small independent movies can be made anywhere. There is a wealth of acting and technical talent [in Boston], one of the largest talent pools of any city besides Los Angeles and New York." — Producer Sarah Green

Thanks to the aggressive efforts of the Massachusetts Film Office (MFO), there's been a rise in major studio features filmed in and around Boston, which has helped foster all of this independent activity. According to the MFO, a dozen independent features were shot in the state during 1996, followed by six more as of this spring. The film office holds a "Film Finance Night" that enables filmmakers to network with potential investors, as well as an annual screenwriting competition, in which the winner receives a free trip to Los Angeles and introductions to film industry professionals.

Maureen Foley, a writer/director who teaches screenwriting at Harvard University, observes, "A lot of people who have gone to school in Boston have the talent and experience to make films. Many of these people liked it here, wanted to stay and are now making their own films." She credits the Massachusetts Film Office for promoting a climate amicable to the realization of low-budget projects such as Foley's own feature debut, *Home Before Dark*.

Foley credits the encouragement and promotion of Boston's feature production scene to such local advocacy organizations as the Boston chapter of Women in Film, the Boston Film/Video Foundation and the Massachusetts Media Alliance. Foley herself raised *Home Before Dark*'s nearly $1 million budget through two limited partnerships in conjunction with Boston-based Scout Productions, which has produced three features in the last few years and has four more in active development. This funding enabled Foley to mount a six-week Super 16mm shoot last summer with the crew working on deferred salaries.

Home Before Dark premiered at this spring's Boston Festival of Women's Cinema; *Variety*'s favorable review from this screening stated that the film "should click on the festival circuit and has strong possibilities for specialized bookings as well." Foley is continuing to seek distributors, and additional festival dates, for a newly struck print of *Home Before Dark* with revised color timing. (At press time, *Home Before Dark* was scheduled to be the closing night film at the Nantucket Film Festival.)

First-time writer/director Roland Tec, whose film *All the Rage* will unspool at this summer's San Francisco Gay and Lesbian Film Festival, praises the MFO for helping "to make it really easy to shoot on the street and capture the scenic qualities of the city."

Tec believes that the driving forces behind the local independent movement are a combination of the increasing use of Massachusetts as a location for Hollywood productions, and the strong film programs at such local institutions as Boston University and Emerson College. He submits, "Because Hollywood films use a lot of high-level local crew people here, someone who has solid experience as a first assistant cameraman for major features is available to be the director of photography on an independent film. Plus, he or she can find camera assistants at the college film programs. Film students will also intern for free, making it easy to fill out the ranks of a crew."

Boston is not only the home of cinematic newcomers, however. Sarah Green, the producer of three of John Sayles' films — *City of Hope*, *Passion Fish* and *The Secret of Roan Inish* — has based her new production firm, Anarchist's Convention, in Gloucester, Massachusetts, just north of Boston. Green and her production partners (who include Sayles) recently completed screenwriter/director David Mamet's new film, *The Spanish Prisoner*, and are now screening the work for distributors. Anarchist's Convention is also starting preproduction on Mamet's next film.

Green notes that Boston's film-friendly climate attracts those looking to embark upon narrative features. She says, "People have come to realize that small independent movies can be made anywhere. There is a wealth of acting and technical talent here, one of the largest talent pools of any city besides Los Angeles and New York. And there's also equity investment in the form of individuals willing to invest in movies through limited partnerships. The unions have made a great effort to draw people in, so that it's not impossible to work with a union here."

The film industry is fully unionized in Massachusetts, with bursting SAG, IATSE and Teamsters locals. Ac-

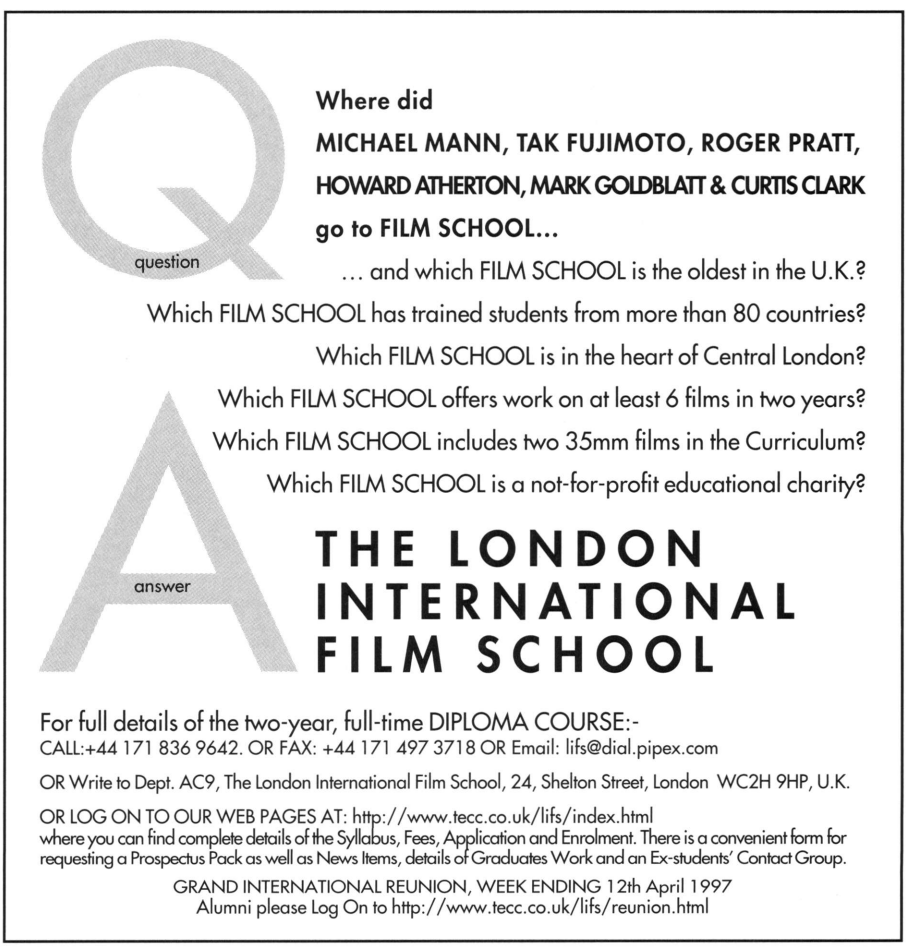
cording to Tim Grafft, deputy director of the Massachusetts Film Office, the unions have become "much more flexible and producer friendly" in the past few years. Terms of union agreements are routinely drafted on a per-picture basis.

Ironically, the surge in independent feature production may be due in part to the hour-long ABC television series *Spenser for Hire*. During its several season run in the late Eighties, this series (which was drawn from Robert B. Parker's popular Boston-based detective novels) was filmed entirely in the Boston area. Says Grafft, "*Spenser* was here working every day for nine months of each year it was on the air. They spent a lot of money and formed a great deal of the basis for our local crew population." He adds that Boston now has the capacity to provide local crews for 2 ½ features at any given time.

However, Boston is still not in the same league as New York, Chicago or Atlanta. None of the national equipment rental firms or labs are located there. According to a film industry professional familiar with the Boston scene, High Output is the only true lighting and rigging supplier, while Boston Camera Rental, the town's only professional-level camera rental house, offers a daily shuttle run to and from DuArt in New York. Another major drawback is the lack of any real soundstages. However, a new facility, to be situated on the campus of Bunker Hill Community College and partially funded by the state, is currently in its final design stages. Plans for other studios are also in various stages of development.

Perhaps Boston's most important asset is the excitement and dynamism typical to boom-towns; there is palpable energy in the Boston independent film scene. Roland Tec comments, "The entire crew on *All the Rage* was amazing; everyone had such incredible morale. There is real excitement in the air. Independent films are springing up all over, and there is a feeling that everyone is going to do their best to make certain Boston succeeds as a film city." ◆

Eric Rudolph has succeeded Brooke Comer as AC*'s East Coast contributing editor. Correspondence can be sent to him at P.O. Box 179, Island Station, New York, NY 10044.*



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Books in Review

by George Turner

Steven Spielberg
by Joseph McBride
Simon & Schuster,
528 pps., hardback, $30

Joseph McBride has already penned major biographies on such late, great moviemakers as Frank Capra, Orson Welles, Howard Hawks and John Ford, but now he has tackled the more formidable task of reporting on a working producer-director currently at his creative peak. The *Box Office* reviewer and ex-*Variety* correspondent delivers the goods in this intelligent biography.

Spielberg's evolving artistry is traced in its full arc, beginning with early 8mm home-movie efforts (1957-65) during his childhood in Arizona. McBride then details the budding auteur's semi-pro films (culminating with 1968's *Amblin'*, which served as his entree to the Hollywood industry), his experience as a TV director (1967-87), and his phenomenal career as a mainstream moviemaker. (Incidentally, most of Spielberg's television work was of remarkable quality, most notably *Columbo: Murder by the Block* and the TV feature *Duel*, written by Richard Matheson.)

The astonishing popularity of *Jaws* (1975), the biggest money-maker of its time, catapulted Spielberg into the Hollywood spotlight. The director's misfires have been infrequent, and easily eclipsed by his huge hits: *Close Encounters of the Third Kind, E.T.: The Extra-Terrestrial,* the *Indiana Jones* trilogy, *Schindler's List, Jurassic Park* and *The Lost World.* McBride interviewed 325 of Spielberg's longtime friends and coworkers (including most of his cinematographers) and did plenty of research for this project, some of it from the pages of *American Cinematographer.*

The author notes that like Alfred Hitchcock before him, Spielberg's cinema is full of the director's own fears and obsessions. McBride also points out that until *Schindler's List,* most critics regarded Spielberg as little more than a precocious entertainer whose childish pictures appealed only to unsophisticated audiences. It's interesting that these arbiters of taste can't grasp the fact that it's just as difficult to produce an entertaining film as it is to make a deadly serious, message-oriented movie — ask anyone who's tried both.

Malcolm St. Clair
by Ruth Anne Dwyer
Scarecrow, 296 pps.,
cloth, $42

One of the forgotten men of cinema is Malcolm St. Clair (1897-1952), whose gift for directing elegant comedy was compared favorably to that of Ernst Lubitsch. A possible reason for this neglect is that St. Clair did his best work in the pre-talkie days, and the appreciation of silent films seems to have diminished markedly in recent years. Although his heart was in the silents, St. Clair gamely learned to work with sound and furthered his directorial career. Most of his talkies, however, were major studio "B" pictures, which — often unjustly — were denied much notice, let alone praise.

St. Clair learned the business from Mack Sennett, beginning in 1915 as a Keystone Kop and supporting comic, but soon graduating to writer and gagman. By 1919, he was directing Sennett comedies. He soon branched out to other studios such as Fox, Universal, FBO, Warner Bros. and Paramount, directing films until mid-1948.

St. Clair's penchant for sophisticated comedy came to the fore during his tenure at Paramount with such farces as *Are Parents People?, The Grand Duchess and the Waiter, Gentlemen Prefer Blondes* and *The Fleet's In.* He also lent his touch to Richard Dix's great fight film, *Knockout Reilly,* and the first Philo Vance mystery, *The Canary Murder Case.* Incidentally, Dwyer managed to sort out the three editions of *Canary* that played in various venues: one silent and tinted; another that's partly sound and partly

silent; and a third full-sound version. (All of the parts with dialogue were directed by Frank Tuttle.)

Most of St. Clair's talkies for 20th Century Fox are not memorable, but it's easy to recall good aspects of *Crack-Up*, a spy drama with Brian Donlevy and Peter Lorre; *Dangerously Yours*, a crook comedy with Caesar Romero and Phyllis Brooks; and *Hollywood Cavalcade*, nostalgia with Alice Faye and Buster Keaton.

Dwyer, a Canadian writer and producer of educational films, has done a fine job of researching this first study of St. Clair, interviewing his colleagues (many now deceased) and studying his surviving films. There is also a touching foreword by the late Bill Everson.

Six Screenplays by Robert Riskin
Edited and introduced by Pat McGilligan
University of California Press, 696 pps., cloth $65, paper $35

Robert Riskin arrived in Hollywood in 1930, and almost immediately became known as an outstanding screenwriter. Most of his best-known work was for films directed by his friend Frank Capra, at Columbia. Riskin won an Academy Award (1932) for *It Happened One Night*, and Oscar nominations for *Lady for a Day, Mr. Deeds Goes to Town, You Can't Take It with You* and *Here Comes the Groom*. Good fortune followed him through much of his life — good friends, fame and fortune, a happy marriage to Fay Wray, children. The last act of his life, however, was tragic — estrangement from Capra, failure of his independent production company and a debilitating stroke which left him helpless for his final five years. Unfortunately, his fame has been obscured by the *auteurists*, who lionize directors at the expense of everyone else.

McGilligan, a writer and editor from Milwaukee, offers an abundance of information about the ace screenwriter's life in a long introduction, with input from Fay Wray. Following this text are complete versions of six of Riskin's well-constructed, expertly written screenplays, including *Platinum Blonde, American Madness, It Happened One Night, Mr. Deeds Goes to Town, Lost Horizon* and *Meet John Doe.* ◆

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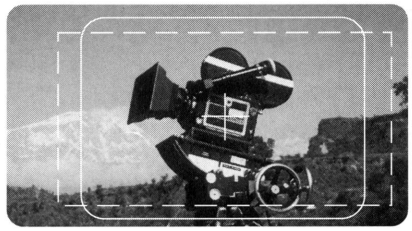

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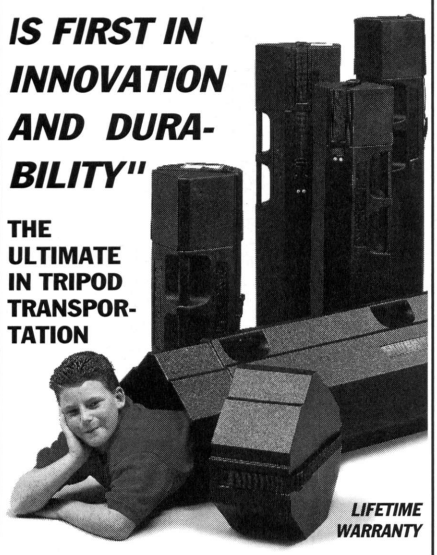

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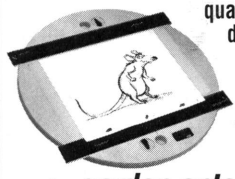
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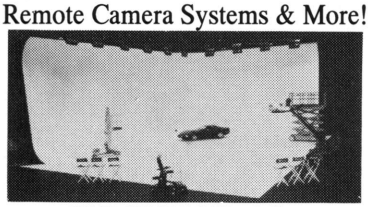
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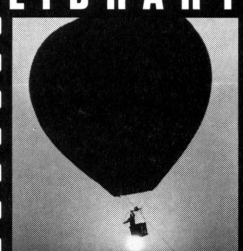
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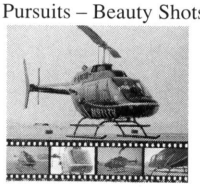

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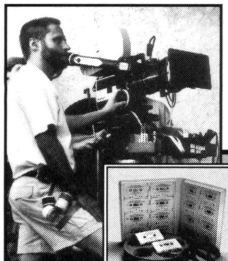

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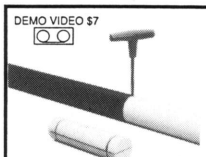

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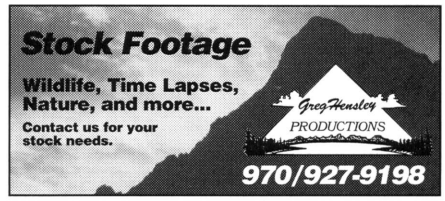

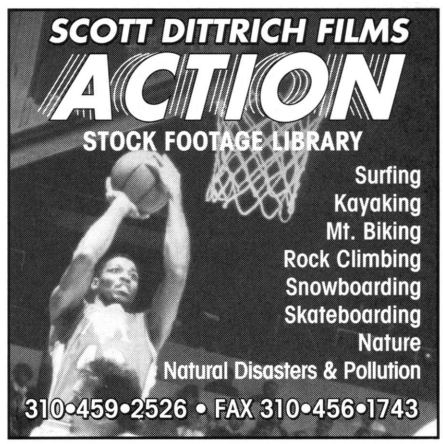

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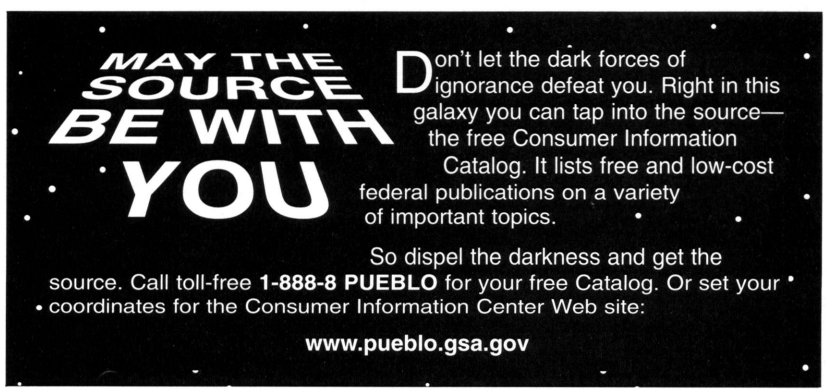

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From the Clubhouse

Makris Joins ASC

The latest inductee into the ASC is Constantine Makris, a native of Brooklyn, New York. After graduating from Queens College with a degree in political science and communications, Makris started working as a production assistant on commercials. In 1974, he joined NABET in New York. After observing various cameramen on both commercials and features, he decided to pursue a career in cinematography.

In 1980, Makris became an assistant cameraman under the tutelage of Larry Pizer, BSC and within a year became his camera operator. Markis credits Pizer with teaching him an aesthetic for the moving image, light and composition. For nine years Makris worked exclusively as an operator and second-unit cameraman. He professes to have been greatly influenced by the work of ASC members Fred Murphy, Ernest Dickerson and Luciano Tovoli, as well as cinematographers John Lindley, Amir Mokri and Walter Lassally, BSC—all of whom Makris worked with as an operator.

In 1988, Makris earned his first feature credits as director of photography on the low-budget action picture *One-Man Force*. He was soon asked to shoot his first TV series, *H.E.L.P.*, for Dick Wolf films, after having operated on the pilot for Ernest Dickerson. When Dickerson left another Dick Wolf series — *Law & Order* — Makris was asked to take his place as the director of photography. Makris has since shot *Law & Order* for 6 ½ seasons, and has also directed 14 episodes. He earned an Emmy for his camerawork on the series in 1993.

Makris' other credits include the pilots *Feds*, *On Seventh Avenue*, *Likely Suspects*, *Graham*, *NYPD Mounted*, and the HBO Special *Out of Towners*, as well as additional photography on the Kathyrn Bigelow film *Blue Steel*.

— Lisa Sibert

The *AC* Web Site

In the effort to better serve its worldwide readership, *American Cinematographer* has expanded beyond the confines of the printed page and into the digital realm of cyberspace. Currently, material from each issue is posted on a monthly basis—with sponsorship allowing everyone to enjoy and learn from selected stories, while others can be accessed only by magazine subscribers ready with their subscription code access number. Key extras on the site include extensive photo archives for each story, a guest book for your comments, and access to subscription and merchandising information.

You can find the site at www.cinematographer.com. ◆

Figueroa Passes Away

The film industry is mourning the loss of one its leading cinematographers with the recent passing of Mexican native Gabriel Figueroa on April 27. Born in 1907, the renowned cameraman was honored by the ASC in 1995 with its International Achievement Award.

Figueroa grew up in Mexico City, where he studied painting and violin at the Music Conservatory and Art Academy of San Carlos. Soon after the advent of sound cinema, he entered the world of movies as a stills photographer. In 1935, he came to Hollywood on scholarship and met Gregg Toland, ASC, who was to become his mentor; Figueroa also began a long relationship with the ASC and its members, most notably Stanley Cortez.

Figueroa's international reputation as cinematographer was established when his first film as a director of photography, Fernando de Fuentes' *Allá en el Rancho Grande* (1936), won a prize at the Venice Film Festival and broke box-office records. Figueroa was recognized twice by the Cannes Film Festival, for his imagery on the films *Maria Candelaria* (1946) and *Macario* (1960). He also earned an Academy Award nomination for his work on *Night of the Iguana* (1964), directed by John Huston, for whom Figueroa later shot *Under the Volcano* (1984).

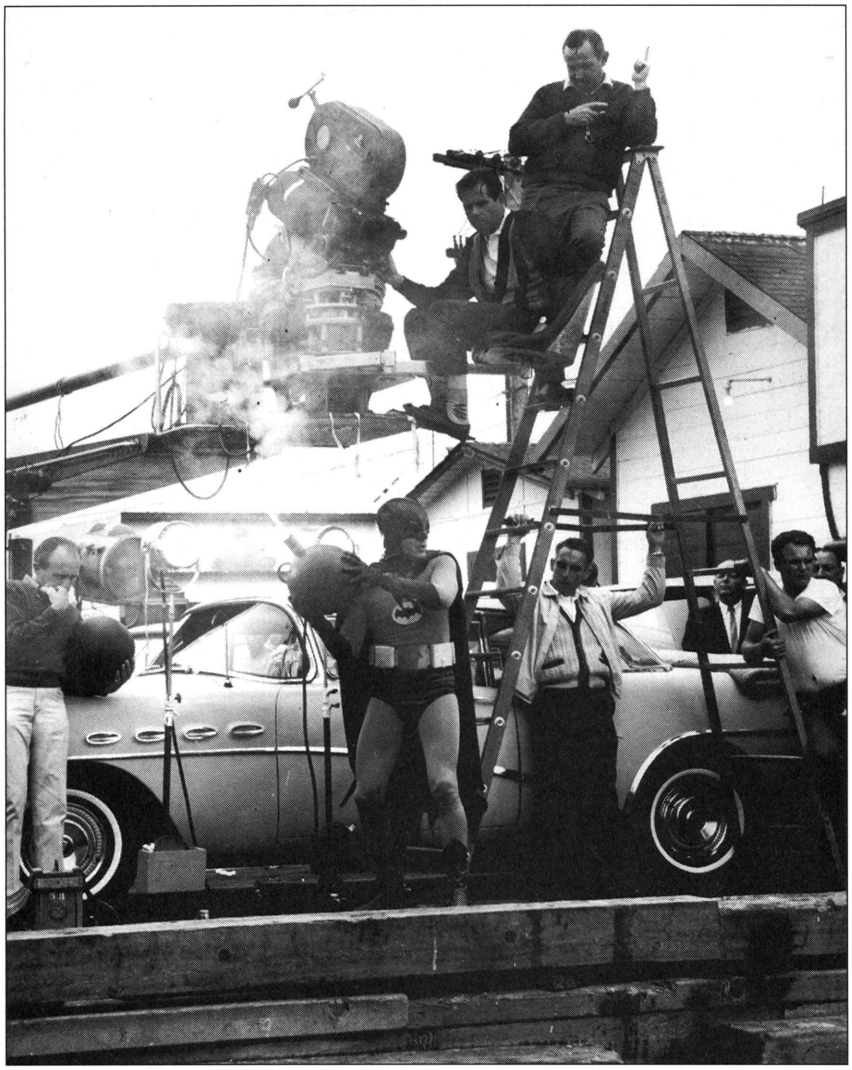
The cinematographer's legendary, longstanding collaboration with Mexican director Emilio Fernandez produced such classics as *Fior Silvestre* (1934), *Maria Calendaria* (1943), *The Pearl* (1945), *Enamorada* (1946), *Rio Escondido* (1947), *Maclovia* (1948), *Pueblerina* (1949) and *Salón México* (1949).

Figueroa's passionate work with Spanish surrealist filmmaker Luis Buñuel includes *Los Olvidados* (1950), *Él* (1952), *Nazarín* (1958), *The Exterminating Angel* (1962) and *Simon of the Desert* (1965). The cinematographer also shot John Ford's *The Fugitive* (1947), Don Siegel's *Two Mules for Sister Sara* (1965) and Brian Hutton's *Kelly's Heroes* (1970).

Figueroa's knowledge of Mexican muralist painters, coupled with expressionistic lighting techniques and infra-red filtering, enabled him develop a signature style of black-and-white cinematography that helped to define Mexican cinema. He co-founded the first independent labor union for cinema artists in Mexico, and also opened his home to some of the Americans "blacklisted" in Hollywood during the 1950s. In 1991, he received a joint tribute from the UCLA Film and Television Archive, the Mexican Film Institute and Chicanos '90. This past December he was lauded at Cuba's International Festival of Latin American Film, and even has a movie theater named in his honor in Mexico City.

Figueroa is survived by his wife, Antonieta, and children, Tolita and Gabriel. ◆

Wrap Shot



"The style of the *Batman* series has been called 'high camp' and 'pop art,' but to those of us who work on it, the approach is highly specialized 'comic strip,'" director of photography Howard Schwartz, ASC noted in *American Cinematographer* upon completing the 1966 feature film *Batman*. "We work to achieve this feeling through a combination of art direction, set decoration, wardrobe design, special effects and lighting." And how.

The Day-Glo-hued photographic approach of the popular ABC Caped Crusader series (1966-68), starring Adam West as Batman and Burt Ward as his trusty sidekick Robin, was designed by cinematographer (and future ASC president) Ralph Woolsey, ASC during the show's initial episodes. Schwartz and Jack A. Marta, ASC then took over and alternated behind the camera, closely following Woolsey's blueprint. Schwartz explained, "The overall style is the result of many small details. For example, even the pictures on the walls of the sets have colored mattes instead of neutral mattes, just as they are in comic strips. We frequently use colored gelatins over our lamps to splash color onto walls in the background of the scene. This gives the set extra depth and is visually more interesting."

This photo was taken during the tight 26-day production of the *Batman* feature, directed by Leslie Martinson, as the not-so-Dark Knight (West) races comically about a pier trying to dispose of a large bomb. Schwartz is observing the action from the top of the ladder, plotting a shot for his blimped Arriflex camera — while his cohorts seem less than excited about the superhero's dilemma. In the film, the Dynamic Duo battle a cadre of supervillains: The Penguin (Burgess Meredith), The Joker (Cesar Romero), Mr. Freeze (George Sanders), The Riddler (Frank Gorshin) and Catwoman (Lee Meriwether).

Overcast weather plagued the production throughout the shoot, which took place in normally sunny Santa Barbara, California. However, Schwartz felt that the situation "proved what I've always maintained: color is easier to shoot than black-and-white. Had we been shooting in black-and-white, there would have been almost no way to keep everything from going flat gray. But in color, instead of depending upon planes of light for separation, the colors themselves create their own separation. Many production departments feel that color takes longer to shoot than black-and-white, but I don't agree. You have to use large lighting units, but it doesn't take any longer."

Faced with a lighting dilemma unique to Bat-matography, the cameraman reported, "We have to be careful in keying our lights to make sure we have enough eye light to get into those holes in [Batman and Robin's] masks. The simple way would be to use an eye-light on the camera, but I prefer to set a light on the floor, because an eye-light, if you're not careful, can flatten out your lighting effect when you move in close."

In a telling aside that reflected the era in which he worked, Schwartz also observed, "*Batman* is a pretty exciting show in color, and since only about 10 percent of the TV audience in this country have color receivers, we feel the feature will give many viewers a chance to see *Batman* in color for the first time."

— David E. Williams

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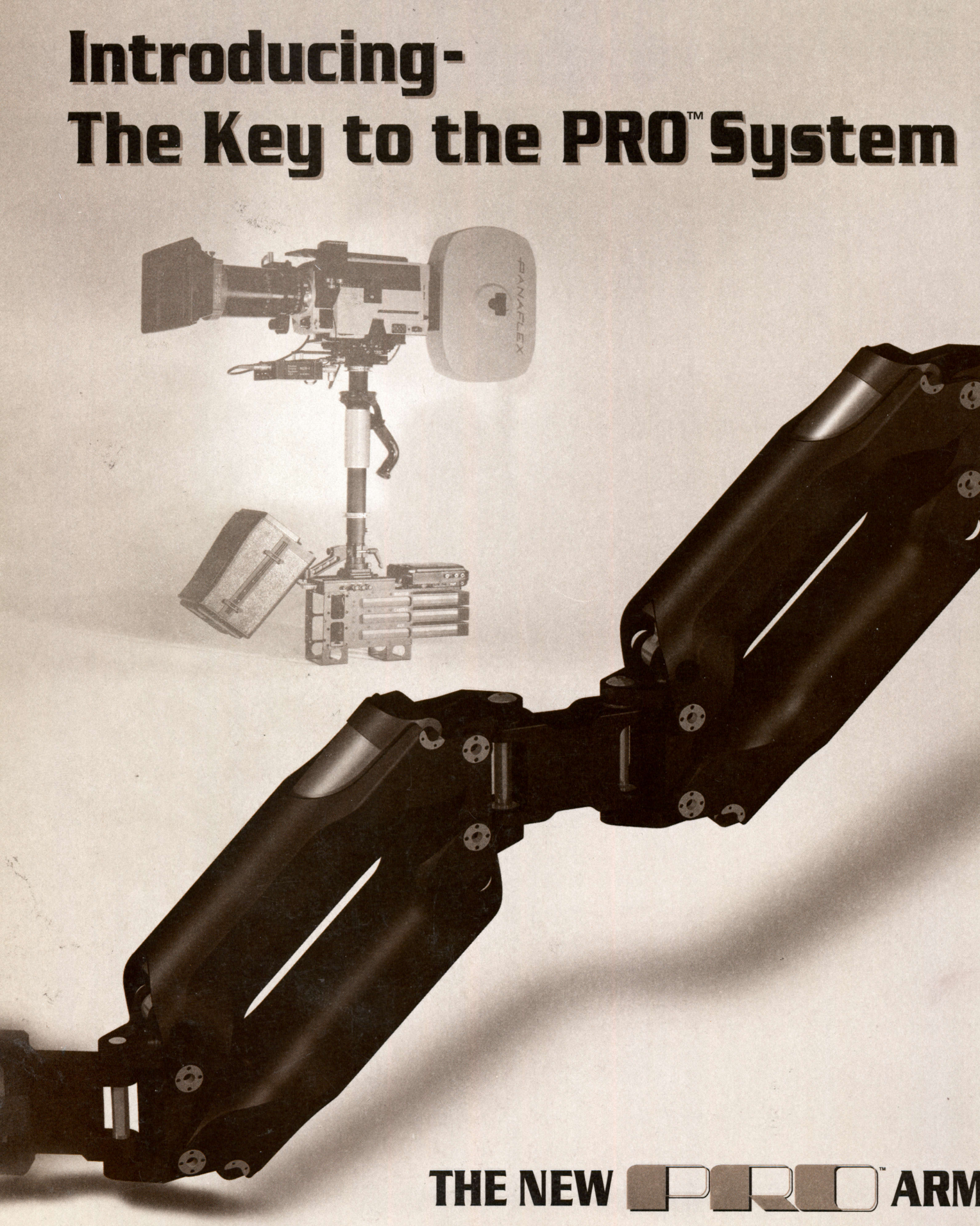

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